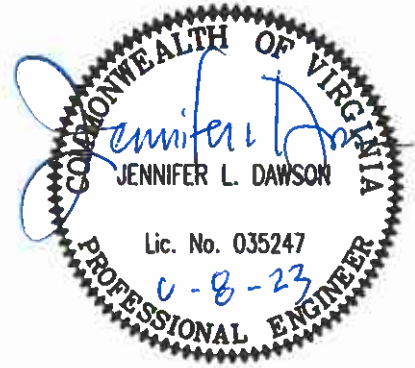




**THOMPSON
& LITTON** EST.
1956

ENGINEERS ARCHITECTS SURVEYORS



ADDENDUM NO. 002

TO: All Plan Holders

RE: Water System Capital Improvements – Phase II
For Town of Bluefield
T&L Project No. 16176

DATE: June 8, 2023

BIDS RECEIVED DATE: June 28, 2023

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated May 5, 2023, as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

This Addendum consists of 24 pages and 6 drawing sheets with the revised date of June 8, 2023.

CLARIFICATIONS AND ANSWERS TO PRE-BID QUESTIONS:

1. All new camera systems shall be on separate networks from the main station controls.
2. The 0.8PF stated on Risers E102 and E103 applies to both single or three-phase power.
3. The remote is to provide access on the exterior of the generator enclosure such that fuel is not spilled inside of the generator enclosure. Fuel fill shall be lockable.
4. Pipe material for lines between the basin and outfall shall be ductile iron as specified in Specification Section 33 1116 – Water Utility Distribution and Treatment Piping and Valves.

CHANGES TO BIDDING REQUIREMENTS:

1. Items within Contract I and II of the Bid Form have been revised.

NOTE: As a result of the above changes, the Bid Form has been reissued in its entirety and must be included in the Contractor's bid submittal(s).

CHANGES TO PROJECT MANUAL:

1. Specification Section 26 2923 – Variable Frequency Motor Controllers has been added to advise instruction regarding the VFD. The additional section is enclosed.



2. Specification Section 32 3113 – Chain Link Fences and Gates has been revised. The revised section is enclosed.
3. Specification Section 33 1223.10 – Public Water Utility Pumps has been added to the project manual. The additional section is enclosed.
4. Specification Section 33 1223.13 – Public Water Utility Pump Station Pumps has been deleted from the project manual.
5. The Table of Contents has been updated to reflect these revisions but is not enclosed.

CHANGES TO DRAWINGS:

1. Drawing C103 has been revised to add new 12' wide double swing gates to the existing fencing between the park and the water treatment plan and add hatching to delineate the area adjacent to the basins where additional earthwork shall be performed to satisfy flood mitigation requirements. The revised drawing is enclosed.
2. Drawing C201 has been revised to add clarification for the ornamental aluminum fencing. The revised drawing is enclosed.
3. Drawing C207 has been revised to clarify the motor requirements for the Raw Water Pump. The revised drawing is enclosed.
4. Drawing E101 has been revised to shift text for visibility. The revised drawing is enclosed.
5. Drawings E102 and E103:
 - a. Additional information has been provided in regards to startup requirements.
 - b. Each ATS withstand requirement value based off of given fault current has been corrected.

The revised drawings E102 and E103 are enclosed.

Enclosures: Bid Form, 8 pages
Specification Section 26 2923, 6 pages
Specification Section 32 3113, 6 pages
Specification Section 33 1223.10, 2 pages
Drawings C103, C201, C207, E101, E102, and E103

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

BID FORM FOR CONSTRUCTION CONTRACTS

Prepared by



Issued and Published Jointly by



BID FORM

PROJECT IDENTIFICATION:

**Water System Capital Improvements – Phase II
for
Town of Bluefield**

CONTRACT IDENTIFICATION AND NUMBER:

T&L Project No. 16176

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Physical Address:

Town of Bluefield
112 Huffard Drive
Bluefield, Virginia 24605

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

2.02 Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within the timeframe presented in the Instructions to Bidders.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

THIS SECTION LEFT INTENTIONALLY BLANK.

BID SCHEDULE – BASE BID – CONTRACT I

The undersigned hereby proposes and agrees to furnish all the necessary labor, materials, equipment, tools, and services for the construction required for this Project in accordance with the Plans, Specifications, and other Contract Documents prepared by Thompson & Litton, at the prices stated below. These prices are to cover all expenses to complete the Work and make it fully operational in accordance with the Contract Documents. Total Bid Amounts shall be stated in both words and figures. In case of a discrepancy, words shall govern. The undersigned agrees that the prices below are the balanced figures used in preparing the Bid and further agrees, if awarded the Contract, to furnish an itemized breakdown of costs for any Bid Item. All line items must be completed, and prices must be totaled on each Bid Schedule and on the Bid Summary, if applicable.

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Water Treatment Plant Wastewater Holding Basins, including wastewater transport system with main wastewater pump station, sitework, access and all associated appurtenances, complete, in place.	L.S.	--		
2	Additional earthwork within the flood mitigation area, complete, in place.	L.S.	--		
3	8-foot-high chain link fence with 3-string barbed wire, complete, in place.	L.F.	330		
4	8-foot-high x 24-foot wide chain link fence double leaf swing gate with 3-string barbed wire, complete, in place.	EA.	2		
5	8-foot-high x 15-foot wide chain link fence double leaf swing gate with 3-string barbed wire, complete, in place.	EA.	1		
6	Bonds, Taxes, Permits, and Insurance	L.S.	--		
7	Mobilization and Temporary Facilities	L.S.	--		
Total of All Unit Price Bid Items					\$

* Contractor's Choice

** Contingency Item

TOTAL BASE BID – CONTRACT I \$ _____

(_____ DOLLARS)

BID SCHEDULE – BASE BID – CONTRACT II

The undersigned hereby proposes and agrees to furnish all the necessary labor, materials, equipment, tools, and services for the construction required for this Project in accordance with the Plans, Specifications, and other Contract Documents prepared by Thompson & Litton, at the prices stated below. These prices are to cover all expenses to complete the Work and make it fully operational in accordance with the Contract Documents. Total Bid Amounts shall be stated in both words and figures. In case of a discrepancy, words shall govern. The undersigned agrees that the prices below are the balanced figures used in preparing the Bid and further agrees, if awarded the Contract, to furnish an itemized breakdown of costs for any Bid Item. All line items must be completed, and prices must be totaled on each Bid Schedule and on the Bid Summary, if applicable.

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Leak Detection Meter & Vault, complete, in place.	EA.	5		
2	FCS S30 Leak Detection System, complete, in place.	EA.	1		
3	Improvements for the Kersey Pump Station, complete, in place.	L.S.	--		
4	Improvements for the Double Gates Tank Site, complete, in place.	L.S.	---		
5	Improvements for the Brierwood Pump Station, complete, in place.	L.S.	---		
6	Improvements for the Falls Mills Vault, UPS System & Appurtenances, complete, in place.	L.S.	---		
7	Water Plant Electric Automatic 36 feet Slide Gate with Control System, complete, in place.	EA.	1		
8	Finished Water Pump Replacement, complete, in place.	EA.	1		
9	Backwash Pump Motor Replacement (shelf), complete, in place.	EA.	1		
10	Raw Water Pump Replacement (solids handling), complete, in place.	EA.	1		
11	6-foot-high chain link fence with 3-string barbed wire, complete, in place.	L.F.	104		
12	6-foot-high x 12-foot-wide chain link fence double leaf swing gate with 3-string barbed wire, complete, in place.	EA.	2		
13	6-foot-high x 3-foot-wide chain link fence pedestrian gate with 3-string barbed wire, complete, in place.	EA.	1		
14	6-foot-high ornamental aluminum fencing, complete, in place.	L.F.	35		
15	6-foot-high x 12-foot-wide ornamental aluminum double leaf swing gate, complete, in place.	EA.	1		
16	Allowance for remote security camera system for each site, controls at the WTP, and installation, complete, in place.	L.S.	--		
17	Bonds, Taxes, Permits, and Insurance	L.S.	--		
18	Mobilization and Temporary Facilities	L.S.	--		
Total of All Unit Price Bid Items					\$

- * Contractor's Choice
- ** Contingency Item

TOTAL BASE BID – CONTRACT II \$ _____

(_____ DOLLARS)

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. Evidence of authority to do business in the state of the Project;
 - C. Required Bidder Qualification Statement with supporting data;
 - D. Certification of Bidder Regarding Debarment by Agency of the Commonwealth of Virginia;
 - E. Workers Compensation Certificate of Coverage;

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____

[I/we elect to use an Escrow Account Procedure for utilization of the Owner's retainage funds.](#)

[State Contractor License No.](#) _____.

SECTION 26 2923 - VARIABLE-FREQUENCY MOTOR CONTROLLERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Variable frequency controllers.

1.2 REFERENCE STANDARDS

- A. NEMA ICS 7.1 - Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems 2014.
- B. NEMA ICS 7 - Industrial Control and Systems: Adjustable-Speed Drives 2014.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2014.
- D. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- E. NFPA 70 - National Electric Code; National Fire Protection Association; 2017.

1.3 SUBMITTALS

- A. Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.
- B. Shop Drawings: Indicate front and side views of enclosures with overall dimensions and weights shown; conduit entrance locations and requirements; and nameplate legends.
- C. Operation Data: NEMA ICS 7.1. Include instructions for starting and operating controllers, and describe operating limits that may result in hazardous or unsafe conditions.
- D. Maintenance Data: NEMA ICS 7.1. Include routine preventive maintenance schedule.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Air Filters: Two of each type.

1.4 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience and with service facilities within 100 miles of Project.
- C. Products: Listed, classified, and labeled as suitable for the purpose intended.
- D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having

jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
- B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to components, enclosure, and finish.

PART 2 PRODUCTS

2.1 DESCRIPTION

- A. Variable Frequency Controllers: Enclosed controllers suitable for operating the indicated loads, in conformance with requirements of NEMA ICS 7. Select unspecified features and options in accordance with NEMA ICS 3.1.
 - 1. Employ pulse-width-modulated inverter system.
 - 2. Furnish as a self contained controller, Combination circuit breaker disconnect, controllers with input line reactors , DV/DT output filters, Manual Control Stations, Indicator pilot lights , and alpha numeric displays for status and alarm indication. manual speed controls, fused primary and secondary control circuit transformers. 4-20 MA DC speed input and serial ports for direct interconnections with PLC PID and Speed Control Functions. Furnish with heat sinks and thermostatically controlled ventilation fans.
 - 3. Design for ability to operate controller with motor disconnected from output.
 - 4. Design to attempt five automatic restarts following fault condition before locking out and requiring manual restart.
 - 5. Furnish Variable Torque type drives for centrifugal pump motors. Furnish manufacturers recommended drive types for particular packaged equipment, unless furnished in the manufacturer's packaged control panels.
 - 6. Drives shall be Six(6) pulse type drives, PMW unless other wise specified on the drawings or required and furnished by the manufacture as part of a packaged system.
- B. Enclosures:
 - 1. Indoor dry location: NEMA 1.
 - 2. Indoor wet location: NEMA 3R.
 - 3. Outdoor/Indoor corrosive enviroment or where subject to hose down: NEMA 4X.
- C. For larger VFD Controller, the DV/DT harmonic output filters can be furnished in separate enclosures to match construction and environmental considerations.
- D. Wiring for input and output connections: Separate both input wiring from output wiring by a minimum of 12" separation for voltages controllers indicated on plans. Input and out put

wiring shall be in rigid steel conduits unless provided with shielded drive three conductor cables with grounding conductor and grounded shields to mitigate harmonic noise.

- E. Finish: Manufacturer's standard enamel.

2.2 OPERATING REQUIREMENTS

- A. Rated Input Voltage: 480 volts, three phase, 60 Hertz.
- B. Motor Nameplate Voltage: 460 volts, three phase, 60 Hertz.
- C. Displacement Power Factor: Between 1.0 and 0.95, lagging, over entire range of operating speed and load.
- D. Operating Ambient: 0 degrees C to 50 degrees C.
- E. Volts Per Hertz Adjustment: Plus or minus 10 percent.
- F. Current Limit Adjustment: 60 to 110 percent of rated.
- G. Acceleration Rate Adjustment: 0.5 to 30 seconds.
- H. Deceleration Rate Adjustment: 1 to 30 seconds.
- I. Input Signal: 4 to 20 mA DC, and Manufacturers standard input signal protocol.

2.3 COMPONENTS

- A. Display: Provide integral / remote door mounted digital display to indicate output voltage, output frequency, and output current.
- B. Status Indicators: Separate indicators for overcurrent, overvoltage, ground fault, overtemperature, and input power ON.
- C. Furnish HAND-OFF-AUTOMATIC selector switch and manual speed control.
- D. Include undervoltage release.
- E. Control Power Source: Integral control transformer.
- F. Door Interlocks: Furnish mechanical means to prevent opening of equipment with power connected, or to disconnect power if door is opened; include means for defeating interlock by qualified persons.
- G. Safety Interlocks: Furnish terminals for remote contact to inhibit starting under both manual and automatic mode.
- H. Control Interlocks: Furnish terminals for remote contact to allow starting in automatic mode.
- I. Disconnecting Means: Include integral circuit breaker on the line side of each controller.
- J. Wiring Terminations: Match conductor materials and sizes indicated.

2.4 SOURCE QUALITY CONTROL

- A. Shop inspect and perform standard production tests for each controller.
- B. Make completed controller available for inspection at manufacturer's factory prior to packaging for shipment. Notify Owner at least 7 days before inspection is allowed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surface is suitable for controller installation.
- B. Do not install controller until building environment can be maintained within the service conditions required by the manufacturer.

3.2 INSTALLATION

- A. Install in accordance with NEMA ICS 7.1 and manufacturer's instructions.
- B. Tighten accessible connections and mechanical fasteners after placing controller.
- C. Select and install overload heater elements in motor controllers to match installed motor characteristics.
- D. Identify variable frequency controllers. Include equipment tag, voltage, phase, and source of power

3.3 FIELD QUALITY CONTROL

- A. Provide the service of the manufacturer's field representative to prepare and start controllers.
- B. Perform field inspection and testing.
- C. Inspect and test in accordance with NETA ATS, except Section 4.
- D. Perform inspections and tests listed in NETA ATS, Section 7.17.

3.4 ADJUSTING

- A. Make final adjustments to installed controller to assure proper operation of load system. Obtain performance requirements from installer of driven loads.

3.5 CLOSEOUT ACTIVITIES

- A. Demonstrate operation of controllers in automatic and manual modes.

3.6 MAINTENANCE

- A. See Section 01 7000 - Execution Requirements, for additional requirements relating to maintenance service.

- B. Provide service and maintenance of controllers for one year from Date of Substantial Completion.

END OF SECTION

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SECTION 32 3113 - CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Posts, rails, and frames.
- B. Wire fabric.
- C. Automatic gate operators.
- D. Accessories.

1.2 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Concrete anchorage for posts.

1.3 REFERENCE STANDARDS

- A. ASTM A121 - Standard Specification for Metallic-Coated Carbon Steel Barbed Wire 2022.
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- D. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric 2011a (Reapproved 2022).
- E. ASTM A428/A428M - Standard Test Method for Weight (Mass) of Coating on Aluminum-Coated Iron or Steel Articles 2021.
- F. ASTM A491 - Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric 2011 (Reapproved 2022).
- G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2020.
- H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2018a.
- I. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2022a.
- J. ASTM F567 - Standard Practice for Installation of Chain-Link Fence 2014a (Reapproved 2019).
- K. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Steel Chain Link Fence Fabric 2017 (Reapproved 2022).
- L. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework 2018.

- M. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures 2018.
- N. ASTM F1665 - Standard Specification for Poly(Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Barbed Wire Used with Chain-Link Fence 2008 (Reapproved 2018).
- O. ASTM F2200 - Standard Specification for Automated Vehicular Gate Construction 2020.
- P. CLFMI CLF-FIG0111 - Field Inspection Guide 2014.
- Q. CLFMI CLF-PM0610 - Product Manual 2017.
- R. CLFMI CLF-SFR0111 - Security Fencing Recommendations 2014.
- S. CLFMI WLG 2445 - Wind Load Guide for the Selection of Line Post and Line Post Spacing 2018.
- T. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
- U. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- V. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
- W. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.
- X. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

1.4 SUBMITTALS

- A. Fence Installer Qualification Statement.
- B. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- C. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
- D. Design Calculations: For high wind load areas, provide calculations for fence fabric and accessory selection as well as line post spacing and foundation details. See CLFMI WLG 2445 for line post and spacing guidance.
- E. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components. See CLFMI CLF-SFR0111 for planning and design recommendations.
- F. Samples: Submit two samples of fence fabric, in size illustrating construction and colored finish.
- G. Manufacturer's Installation Instructions: Indicate installation requirements.

- H. Manufacturer's Qualification Statement.
- I. Field Inspection Records: Provide installation inspection records that include post settings, framework, fabric, barbed wire, fittings and accessories, gates, and workmanship.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Fence Installer: Company with demonstrated successful experience installing similar projects and products, with not less than five years of documented experience.

1.6 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Chain Link Fences and Gates:
 - 1. Master-Halco, Inc: www.masterhalco.com/#sle.
 - 2. Merchants Metals: www.merchantsmetals.com/#sle.
 - 3. Substitutions: See Section 01 6000 - Product Requirements.
- B. Automatic Gate Operators:
 - 1. Tymetal Corp: www.tymetal.com/#sle.
 - 2. Substitutions: See Section 01 6000 - Product Requirements.

2.2 MATERIALS

- A. Posts, Rails, and Frames:
- B. ASTM A1011/A1011M, Designation SS; hot-rolled steel strip, cold formed to pipe configuration, longitudinally welded construction, minimum yield strength of 50 ksi; zinc coating conforming to ASTM F1043 and ASTM F1083.
- C. Formed from hot-dipped galvanized steel sheet, ASTM A653/A653M, HSLAS, Grade 50, with G90 (Z275) zinc coating.
- D. Line Posts: Type I round.
- E. Terminal, Corner, Rail, Brace, and Gate Posts: Type I round.
- F. Conform to CLFMI CLF-PM0610.

- G. Wire Fabric:
- H. ASTM A392 zinc coated steel chain link fabric.
- I. Conform to CLFMI CLF-PM0610.
- J. Ready-mixed, complying with ASTM C94/C94M; normal Portland cement; 2,500 psi strength at 28 days, 3 inch slump; nominal size aggregate.

2.3 COMPONENTS

- A. Line Posts: 1.9 inch diameter.
- B. Corner and Terminal Posts: 2.38 inch diameter.
- C. Fabric: 2 inch diamond mesh interwoven wire, 9 gage, 0.1483 inch thick, top selvage knuckle end closed, bottom selvage twisted tight.

2.4 AUTOMATIC GATE OPERATORS

- A. Sliding Gates: Pre-wired, pedestal mounted gate operator for horizontal sliding gates, per ASTM F2200 and UL 325.
 - 1. Class: Class I.
 - 2. Operating type: drive belt.
 - 3. Control Functions: Open, Pause, Close.
 - 4. Maximum Open/Close Time: 10 seconds.
 - 5. Access: Keypad, Remote, and Remote Call from Lab Room. Include keyfobs. Gate to open automatically when vehicle approaches from inside.
 - 6. Maximum gate weight: 500 pounds (187 kilograms).
 - 7. Horsepower Rating: Suitable for connected load.
 - 8. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
 - 9. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
 - a. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.

2.5 ACCESSORIES

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

- C. Extension Arms: Cast steel galvanized, to accommodate 3 strands of barbed wire, single arm, vertical.

2.6 FINISHES

- A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 ounces per square foot.
- B. Components and Fabric: Vinyl coated over coating of 1.8 ounces per square foot galvanizing.
- C. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.
- D. Accessories: Same finish as framing.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Verify that areas are clear of obstructions or debris.
- B. Preinstallation Testing: Test areas for ledge.

3.2 PREPARATION

- A. Removal: Obstructions or debris.
- B. Ground Preparation:

3.3 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ASTM F567.
- B. Install operator in accordance with manufacturer's instructions and in accordance with NFPA 70.

3.4 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From True Position: 1 inch.
- C. Do not infringe on adjacent property lines.

3.5 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Layout: Verify that fence installation markings are accurate to design, paying attention to gate locations, underground utilities, and property lines.
- C. Gates: Inspect for level, plumb, and alignment.

- D. Workmanship: Verify neat installation free of defects. See CLFMI CLF-FIG0111 for field inspection guidance.

3.6 CLEANING

- A. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
- B. Clean fence with mild household detergent and clean water rinse well.

3.7 CLOSEOUT ACTIVITIES

- A. See Section 01 7800 - Closeout Submittals, for closeout submittals.
- B. See Section 01 7900 - Demonstration and Training, for additional requirements.
- C. Demonstrate proper operation of equipment to Owner's designated representative.
- D. Demonstration: Demonstrate operation of system to Owner's personnel.
 - 1. Use operation and maintenance data as reference during demonstration.
 - 2. Conduct walking tour of project.
 - 3. Briefly describe function, operation, and maintenance of each component.
- E. Training: Train Owner's personnel on operation and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of two hours of training.
 - 3. Instructor: Manufacturer's training personnel.
 - 4. Location: At project site.

END OF SECTION

SECTION 33 1223.10 - PUBLIC WATER UTILITY PUMPS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pumps and related equipment.

1.2 RELATED REQUIREMENTS

- A. Division 26 - Electrical.

1.3 SUBMITTALS

- A. Submit the following:
 - 1. Shop drawings including bill of materials, total weight of unit, total thrust, outline drawing.
 - 2. Pump performance data including pump characteristic curve, pump efficiency at design conditions, motor efficiency at design conditions. Required brake horsepower at design conditions, maximum shut-off head.
 - 3. Loop diagrams showing controls and proposed mode of operation.
 - 4. Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 REQUIREMENTS

- A. Pump manufacturers shall supply pumps as complete units including drivers. Assembly by the contractor of pumps, motors and the like, supplied by various independent manufacturers, will not be allowed.
- B. Pump motors shall be sized such that the motor does not overload at any point on the operating curve. Pumps and motors shall be designed to operate continuously or intermittently at the conditions scheduled on the Drawings.
- C. Pump motors shall be 1750 rpm maximum unless otherwise scheduled on drawings.
- D. Pumps shall be equipped with pressure gages graduated in psi and feet of water for the operating range of the pump. Standard gage is necessary on the discharge line and the suction line, where applicable.
- E. A tap suitable for insertion of pitot tube shall be provided on the discharge of each pumping unit for testing purposes.
- F. Pump shall be supplied with standard recommended spare parts as suggested by manufacturers including packing, stuffing box gaskets, shaft couplings, and column couplings.

- G. All pumps to be provided with permanently affixed nameplates which include impeller diameter, rated capacity in gpm, rated head in feet, rpm, and motor horsepower.
- H. Pump motors shall be rated for use with variable speed drives and shall have pump impellers balanced for variable speed operation.
- I. Other motor requirements shall be as specified in Division 26 - Electrical.

2.2 VERTICAL TURBINE PUMPS

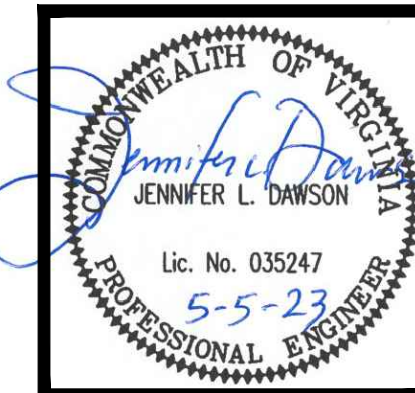
- A. Pump and driver requirement shall be as indicated on the drawings.

PART 3 EXECUTION

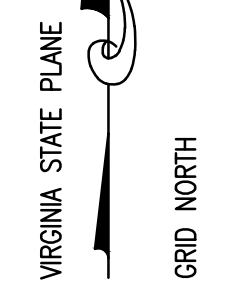
3.1 INSTALLATION AND INSPECTION

- A. Install all pumps in accordance with manufacturer's recommendations.
- B. Inspect each pump for proper alignment and ensure that no seepage occurs on pumps using a mechanical seal.

END OF SECTION



POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP5	3621980.66	10672117.67	2418.96	TNS GPS
CP6	3621859.23	10672242.17	2412.34	TNS



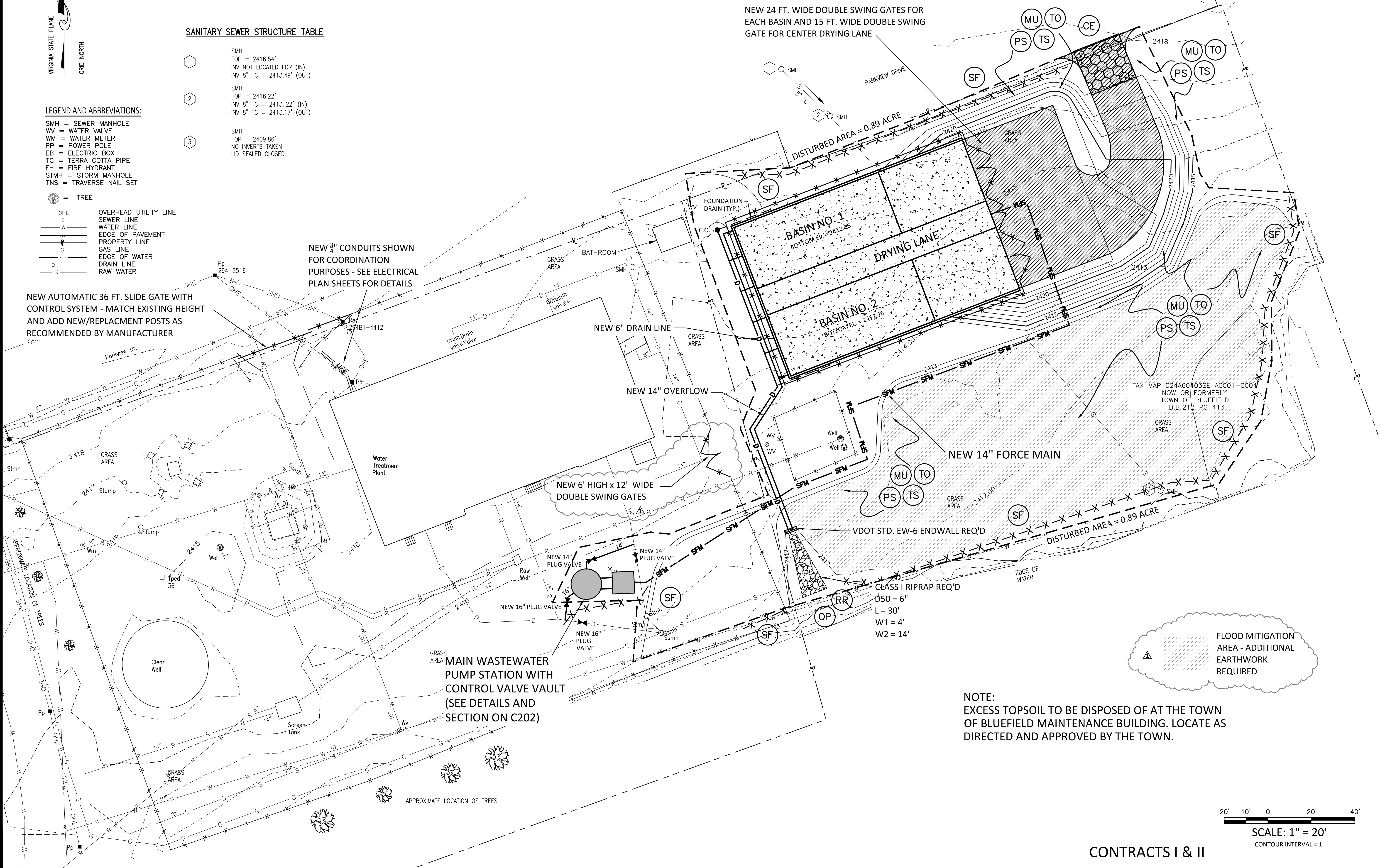
LEGEND AND ABBREVIATIONS:

- SMH = SEWER MANHOLE
- WV = WATER VALVE
- WM = WATER METER
- PP = POWER POLE
- EB = ELECTRIC BOX
- TC = TERRA COTTA PIPE
- FH = FIRE HYDRANT
- STMH = STORM MANHOLE
- TNS = TRAVERSE NAIL SET
- TREE = TREE

- OHE = OVERHEAD UTILITY LINE
- S = SEWER LINE
- W = WATER LINE
- W.P. = EDGE OF PAVEMENT
- P.L. = PROPERTY LINE
- G.L. = GAS LINE
- E.W. = EDGE OF WATER
- D.L. = DRAIN LINE
- R = RAW WATER

SANITARY SEWER STRUCTURE TABLE

- 1 SMH
TOP = 2416.54'
INV NOT LOCATED FOR (IN)
INV 8" TC = 2413.49' (OUT)
- 2 SMH
TOP = 2416.22'
INV 8" TC = 2413.22' (IN)
INV 8" TC = 2413.17' (OUT)
- 3 SMH
TOP = 2409.86'
NO INVERTS TAKEN
LID SEALED CLOSED



NEW AUTOMATIC 36 FT. SLIDE GATE WITH CONTROL SYSTEM - MATCH EXISTING HEIGHT AND ADD NEW/REPLACEMENT POSTS AS RECOMMENDED BY MANUFACTURER

NEW 3/4" CONDUITS SHOWN FOR COORDINATION PURPOSES - SEE ELECTRICAL PLAN SHEETS FOR DETAILS

NEW 6" DRAIN LINE

NEW 14" OVERFLOW

NEW 6' HIGH x 12' WIDE DOUBLE SWING GATES

MAIN WASTEWATER PUMP STATION WITH CONTROL VALVE VAULT (SEE DETAILS AND SECTION ON C202)

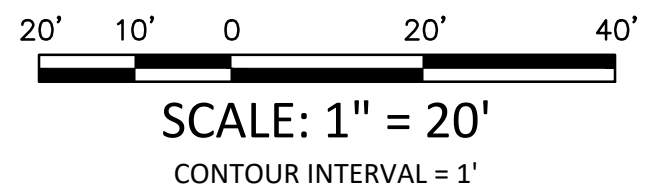
NEW 24 FT. WIDE DOUBLE SWING GATES FOR EACH BASIN AND 15 FT. WIDE DOUBLE SWING GATE FOR CENTER DRYING LANE

NEW 14" FORCE MAIN

CLASS I RIPRAP REQ'D
D50 = 6"
L = 30'
W1 = 4'
W2 = 14'

FLOOD MITIGATION AREA - ADDITIONAL EARTHWORK REQUIRED

NOTE:
EXCESS TOPSOIL TO BE DISPOSED OF AT THE TOWN OF BLUEFIELD MAINTENANCE BUILDING. LOCATE AS DIRECTED AND APPROVED BY THE TOWN.



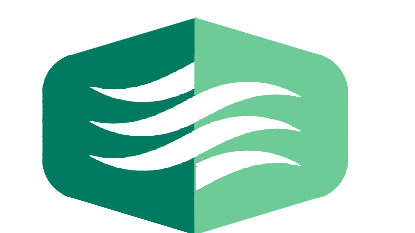
CONTRACTS I & II

WATER SYSTEM CAPITAL IMPROVEMENTS - PHASE II
FOR THE
TOWN OF BLUEFIELD, VIRGINIA
SITE PLAN - TOWN OF BLUEFIELD WATER TREATMENT PLANT
- NEW WASTE HOLDING BASINS & MAIN WASTEWATER PUMP STATION

No.	▲
Date	05-07-23
ISSUED FOR BID	06-08-23
Purpose of Document Issue	ADDENDUM NO. 002

Designed	JLD
Drawn	ESB
Checked	DBM
Date	NOVEMBER 2021

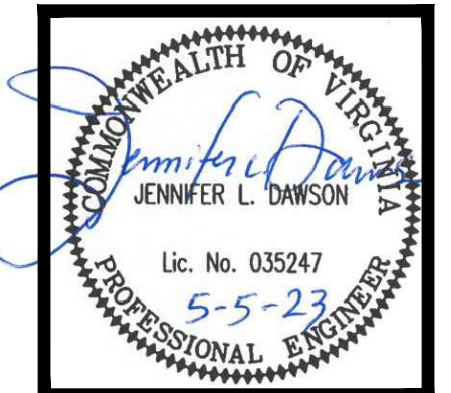
Project No.
16176



THOMPSON & LITTON

Sheet No.

C103



Point Table				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	3617500.258	10676849.791	2833.39	HIPER V BASE
CP2	3617520.144	10676717.101	2832.80	HIPER V ROVER

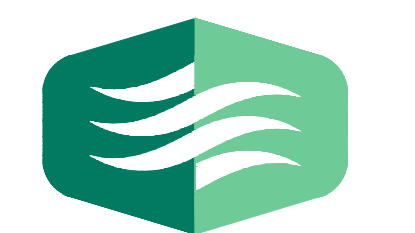
POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP3	3619992.38	10677260.45	2553.81	TNS
CP4	3620092.52	10677230.08	2553.81	TNS

WATER SYSTEM CAPITAL IMPROVEMENTS - PHASE II
FOR THE TOWN OF BLUEFIELD, VIRGINIA
SITE PLANS - BRIERWOOD AND KERSEY PUMP STATIONS

No.	▲	
Date	05-07-23	
	06-08-23	
Purpose of Document Issue ISSUED FOR BID ADDENDUM NO. 002		

Designed	JLD
Drawn	ESB
Checked	DBM
Date	NOVEMBER 2021

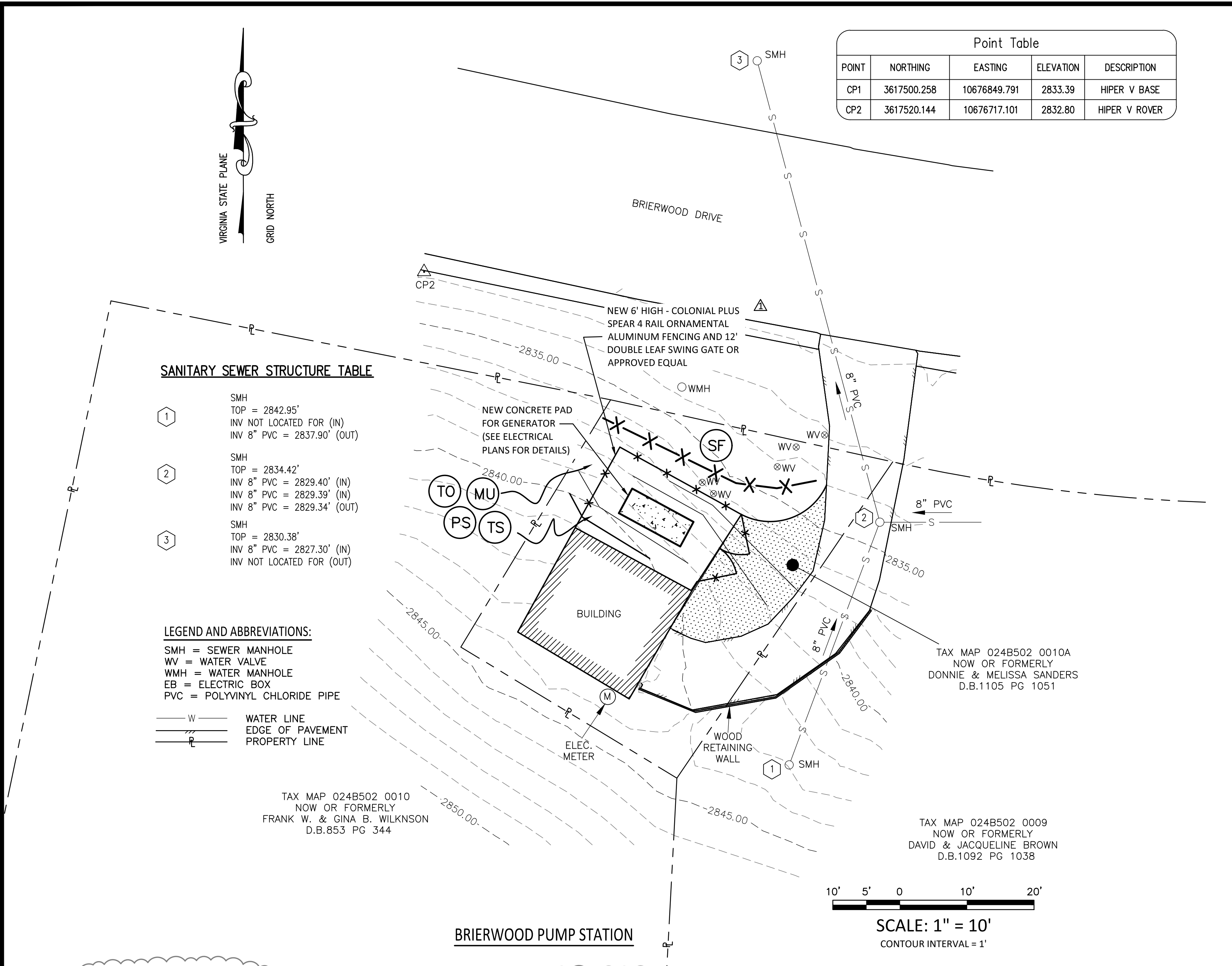
Project No. **16176**



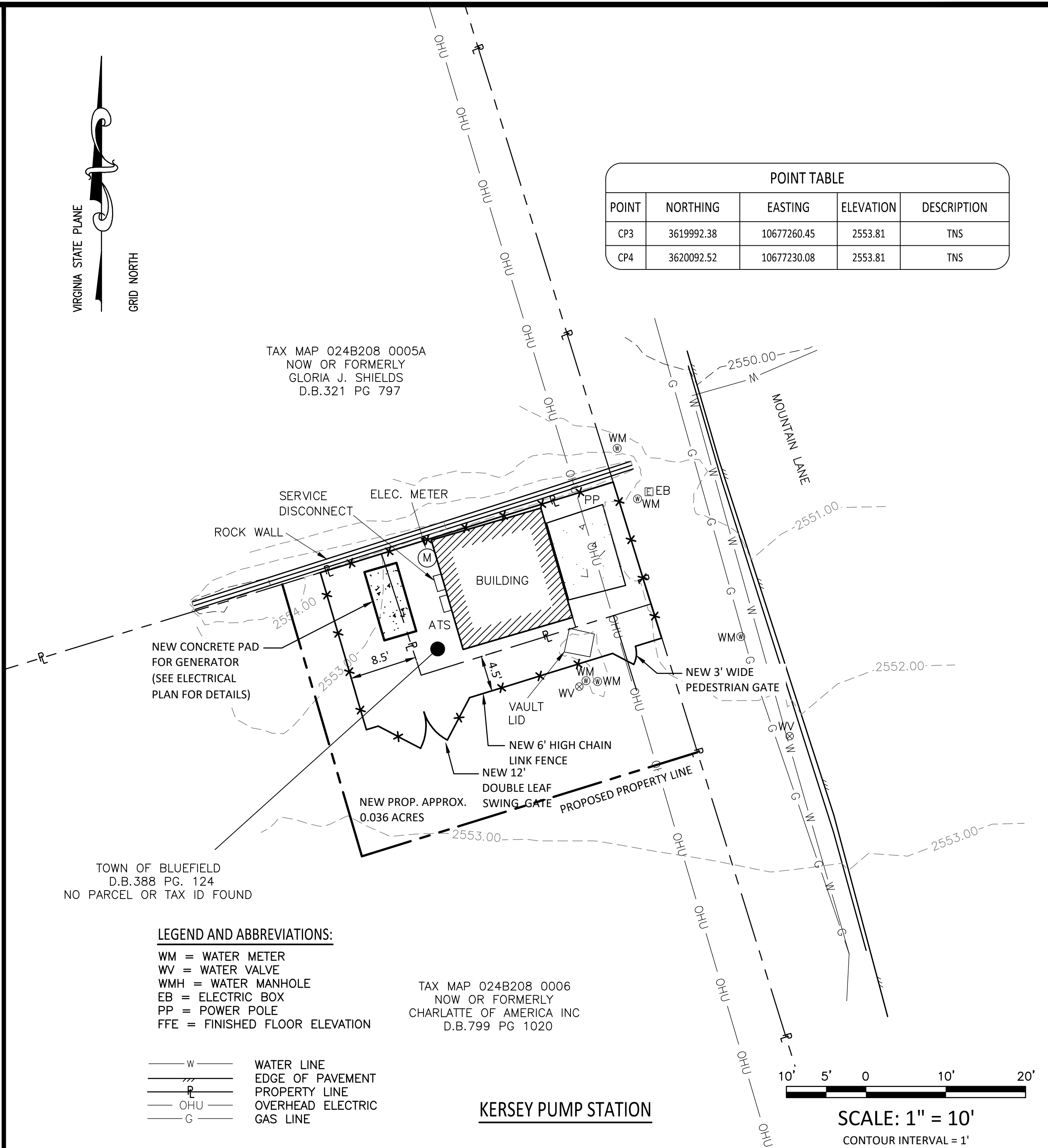
Sheet No.

C201

CONTRACT II

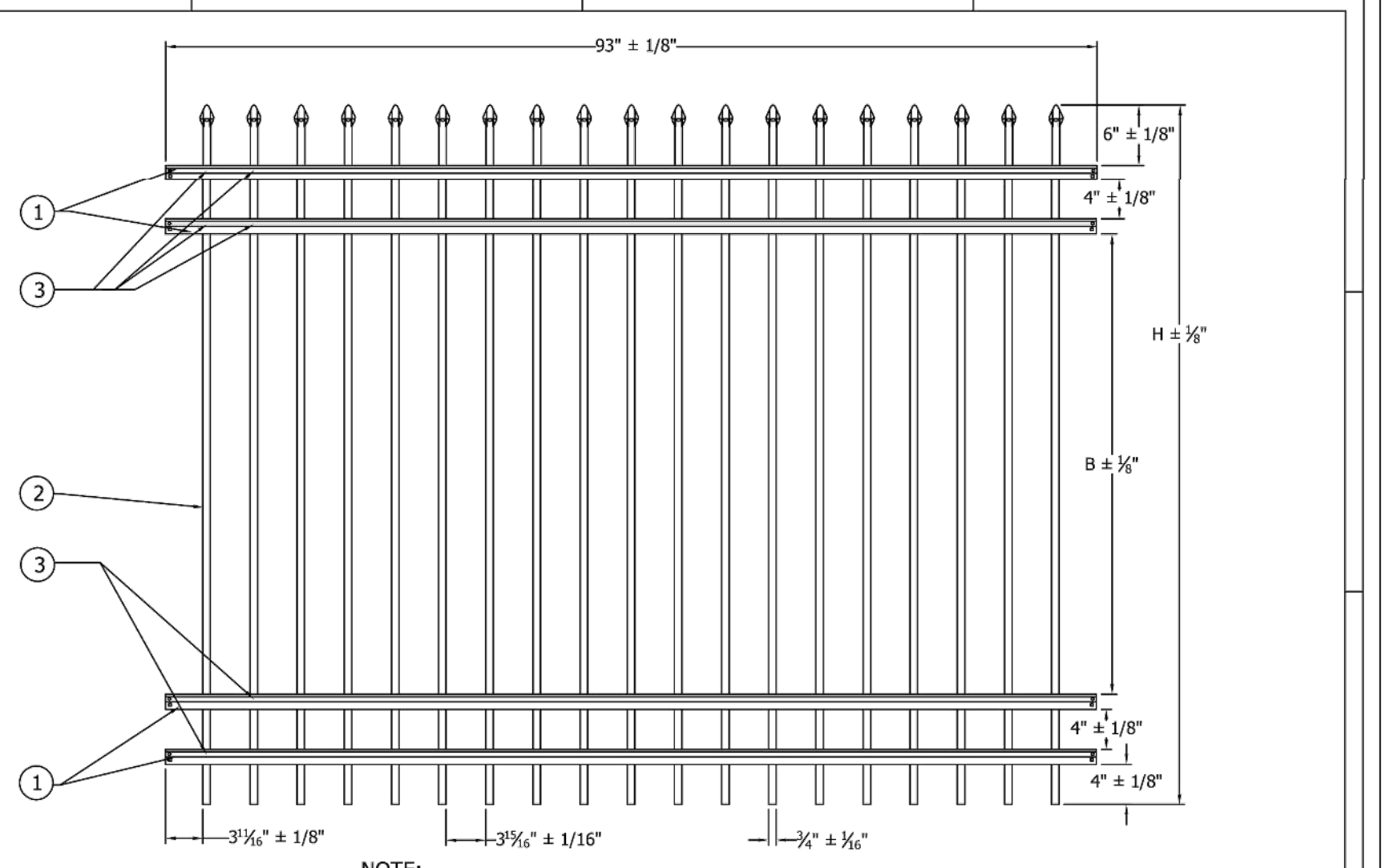


SCALE: 1" = 10'
 CONTOUR INTERVAL = 1'



SCALE: 1" = 10'
 CONTOUR INTERVAL = 1'

DOUBLE LEAF DIMENSIONS				
OPENING	LEAF WIDTH	HINGE CLEARANCE	LATCH CLEARANCE	GATE POST SPACING
12'	141"	.75"	.75"	144"



NOTE:
 1. Panels are shipped assembled.
 2. Powder Coating: AAMA 2603 Polyester TGIC
 3. Color: DS1120 Matte Black
 4. Each picket has 3 wedge locks.
 5. Wedge locks on 2 bottom rails are on alternating rails.
 6. Specifications shown can be changed by Master Halco only.

No.	Item	Material	Quantity
3	Wedge Lock	Super Tuff Nylon	57
2	1/2" Picket (94025-S7)	6063-T52	19
1	U Channel (94116R1)	6063-T6	4

DESCRIPTION: COLONIAL PLUS SPEAR 4 RAIL
 NOM 8" SECTION LENGTH - 3/4" PICKET

Panel Part No.	H	B
723242	70" (1778MM)	46" (1168MM)
BY: wjm	DWG: H141 Panel	
DATE: 06-25-2009	DRAFT: 20160411-7	
REV: Revised wedge lock usage	LOC: Z/ALUM/MHCC/DD/PANELS	
REV DATE: 04-11-2016		

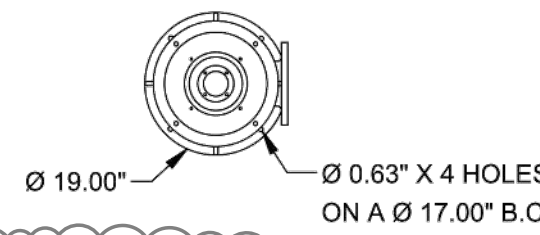


RAW WATER PUMP & MOTOR REPLACEMENT

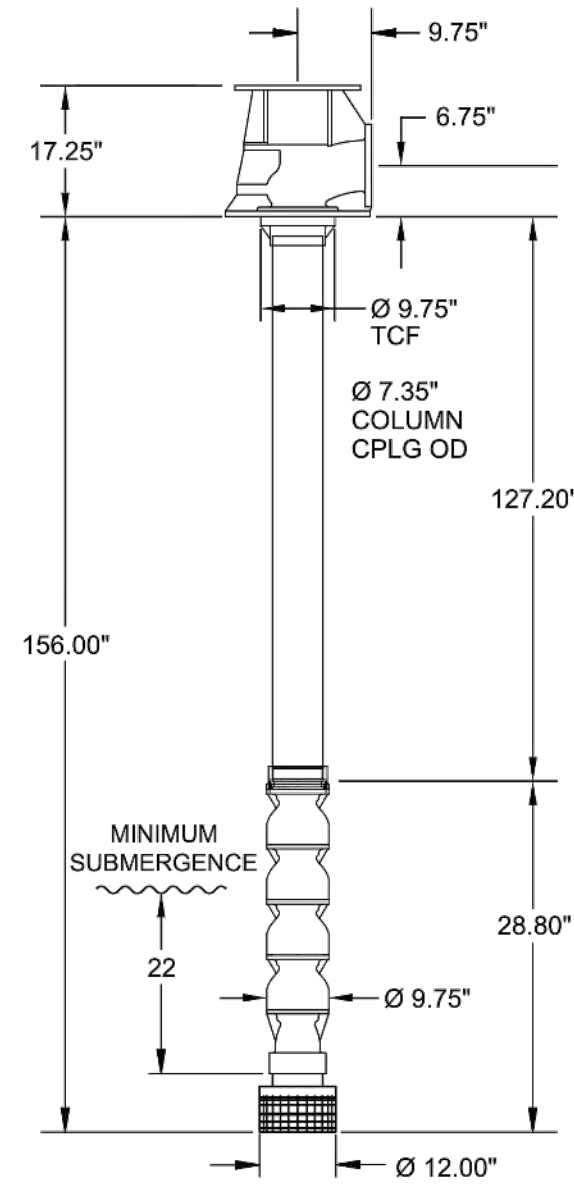
VERTICAL TURBINE PUMP



CUSTOMER SUPPLIED DRIVER DATA FOR HEADSHAFT
KWY 0.25" BX 1.00" CD 23.38"



PROVIDE 15HP, 1800 RPM 3Ø, 60H, 230/460V MOTOR BY US MOTORS OR APPROVED EQUAL, COMPATIBLE WITH PUMP



DISCHARGE HEAD
MODEL N-260 W/10.0" 12.0" & 16.5" BD
6" - ANSI CLASS 125-FF DISCHARGE FLANGE
X PACKING BOX STD BRZ PACKING GLAND
N/A MECHANICAL SEAL N/A
N/A TENSION ASSEMBLY NO SOLE PLATE

COLUMN
6" X 0.280" WALL X THD N/A FLG'D
LINESHAFT X OPEN (N/A) ENCLOSED
SHAFT DIA 1.00" TP1 10 TPI TUBE DIA N/A

BOWL
1 STAGE E10HO BOWL ASSEMBLY
N/A US GPM FLOW N/A FT. HEAD
STRAINER X YES NO TYPE BASKET

MATERIALS
BOWLS C1 COLUMN A53 GR B
IMPELLERS 876 BZ (STD) COLUMN CPG DI
BWL SFT 416 SS SHAFT TUBE N/A
COLLETS 316 SS BRG RRT BZ
BOWL BRG BOWL DWG LINE SFT BRGS RUBBER
BOLTING SS LINE SFT SS (416)
TENSION BRG N/A SHAFT SLEEVES N/A
MECH SEAL N/A SHAFT CPG SS (304)
SOLE PLATE N/A PACKING GRAPHITE
BOWL WR N/A STRAINER 304SS
IMP WR N/A HEAD CI
HEAD SHAFT 1045 CS HEAD SHAFT CPG CS (1215)
BOWL SURFACE FINISH STD PAINT; OD
COLUMN SURFACE FINISH STD PAINT; OD
HEAD SURFACE FINISH STD PAINT; OD

PROJECT NAME
Q-114062-1
WEIGHT & THRUST ESTIMATES
BOWL 140 LBS COLUMN 211 LBS HEAD 245 LBS
SHAFT 30 LBS TUBE 0 LBS DRIVER 0 LBS
HYD THRUST 321 LBS DRIVER MAX THRUST N/A LBS
SPECIAL NOTE: ASSEMBLE AS A SCVT PUMP
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SHOWN.
FOUR STAGE ASSEMBLY SHOWN.
NOT FOR CONSTRUCTION UNLESS CERTIFIED.

MFG. BY NATIONAL PUMP COMPANY

Quote #: Q-114062-B3

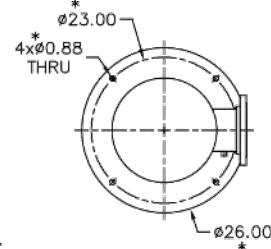
Powered by REVOLUTION

Page 6 of 9

FINISHED WATER PUMP & MOTOR REPLACEMENT

VERTICAL TURBINE PUMP

DISCHARGE HEAD TYPE "F"



SPECIAL FEATURES:

1. Ship Sub-assembled.
2. Thrust roller bearings.
3. Stainless steel non-potable.
4. Bowl wear ring only.
5. Maximum shaft and column lengths are 59.00".
6. Spare Parts (one set per unit unless indicated):
- Thrust bearing
- Section bearing
- Bowl bearing
- Line shaft bearing
- Seal housing bearing
- Head Ring
- Mechanical seal.

COATING:

The Discharge Head exposed non-machined exterior surfaces will be sandblasted per SSPC-SP-6, Corrosive Carbonyl 89VOC (color: Light Blue #0100) in 5-14 mils (not to exceed 20 mils) DFT will be applied.
The Discharge Head interior, wetted surfaces of packing box, Column interior exterior and Bowl Assembly exterior will be sandblasted per SSPC-SP-10, Corrosive Carbonyl 89VOC (color: White #0000) in 5-14 mils (not to exceed 20 mils) DFT will be applied.

TESTING:

Hydrostatic Testing:
The Discharge Head & Bowls will be hydrostatically tested in accordance with Hydraulic Institute Standards.

APPROX WEIGHT #
MOTOR 1700 #
DISCH. HD. 450 #
COL. ASSY. 450 #
BOWL ASSY. 935 #
TOTAL WT. 3535 #

MOTOR

DISCH. FLANGE
DN 150g -R.F. ANSI FLG
DN 200 -R.F. ANSI FLG
DN 300 -R.F. ANSI FLG
DN 400 -R.F. ANSI FLG
DN 500 -R.F. ANSI FLG
DN 600 -R.F. ANSI FLG
DN 700 -R.F. ANSI FLG
DN 800 -R.F. ANSI FLG
DN 900 -R.F. ANSI FLG
DN 1000 -R.F. ANSI FLG
DN 1200 -R.F. ANSI FLG
DN 1500 -R.F. ANSI FLG
DN 2000 -R.F. ANSI FLG
DN 2400 -R.F. ANSI FLG
DN 3000 -R.F. ANSI FLG
DN 3600 -R.F. ANSI FLG
DN 4200 -R.F. ANSI FLG
DN 4800 -R.F. ANSI FLG
DN 5400 -R.F. ANSI FLG
DN 6000 -R.F. ANSI FLG
DN 6600 -R.F. ANSI FLG
DN 7200 -R.F. ANSI FLG
DN 7800 -R.F. ANSI FLG
DN 8400 -R.F. ANSI FLG
DN 9000 -R.F. ANSI FLG
DN 9600 -R.F. ANSI FLG
DN 10200 -R.F. ANSI FLG
DN 10800 -R.F. ANSI FLG
DN 11400 -R.F. ANSI FLG
DN 12000 -R.F. ANSI FLG
DN 12600 -R.F. ANSI FLG
DN 13200 -R.F. ANSI FLG
DN 13800 -R.F. ANSI FLG
DN 14400 -R.F. ANSI FLG
DN 15000 -R.F. ANSI FLG
DN 15600 -R.F. ANSI FLG
DN 16200 -R.F. ANSI FLG
DN 16800 -R.F. ANSI FLG
DN 17400 -R.F. ANSI FLG
DN 18000 -R.F. ANSI FLG
DN 18600 -R.F. ANSI FLG
DN 19200 -R.F. ANSI FLG
DN 19800 -R.F. ANSI FLG
DN 20400 -R.F. ANSI FLG
DN 21000 -R.F. ANSI FLG
DN 21600 -R.F. ANSI FLG
DN 22200 -R.F. ANSI FLG
DN 22800 -R.F. ANSI FLG
DN 23400 -R.F. ANSI FLG
DN 24000 -R.F. ANSI FLG
DN 24600 -R.F. ANSI FLG
DN 25200 -R.F. ANSI FLG
DN 25800 -R.F. ANSI FLG
DN 26400 -R.F. ANSI FLG
DN 27000 -R.F. ANSI FLG
DN 27600 -R.F. ANSI FLG
DN 28200 -R.F. ANSI FLG
DN 28800 -R.F. ANSI FLG
DN 29400 -R.F. ANSI FLG
DN 30000 -R.F. ANSI FLG

PUMPAGE

FLUID: WATER
SPEC. GRAVITY: 1.000
VISCOSITY: 1.000
TEMPERATURE: AMBIENT
PH: 7.000
PUMP: 15 HP, 1800 RPM, 3Ø, 230/460V, WEATHER PROTECTED TYPE I, FRAME 404, 405TP, TPA, TYPE RU, RUE, RUI, RUS

DISCH. HEAD: 45.00 FT.
SHAFT: 1.000 IN.
LINE SFT: 10.00
TYPE: 15 HP, 1800 RPM, 3Ø, 230/460V, WEATHER PROTECTED TYPE I, FRAME 404, 405TP, TPA, TYPE RU, RUE, RUI, RUS

Notes:
1. ALL DIMENSIONS IN INCHES
2. DO NOT SCALE DIMENSIONS
3. SEE DIMENSIONS OF LOCATION STANDARD AS SHOWN WITH CONDUIT OPENING DOWN.

96-22338

BACKWASH WATER PUMP MOTOR (SHELF)

DATE:

TO:

ATTN:

Model Number:
Catalog Number:
VHS Weather Protected
CONF. MOTOR VHS WP1

P.O. NO.:

Order/Line NO.:

REVISIONS:
(NONE)

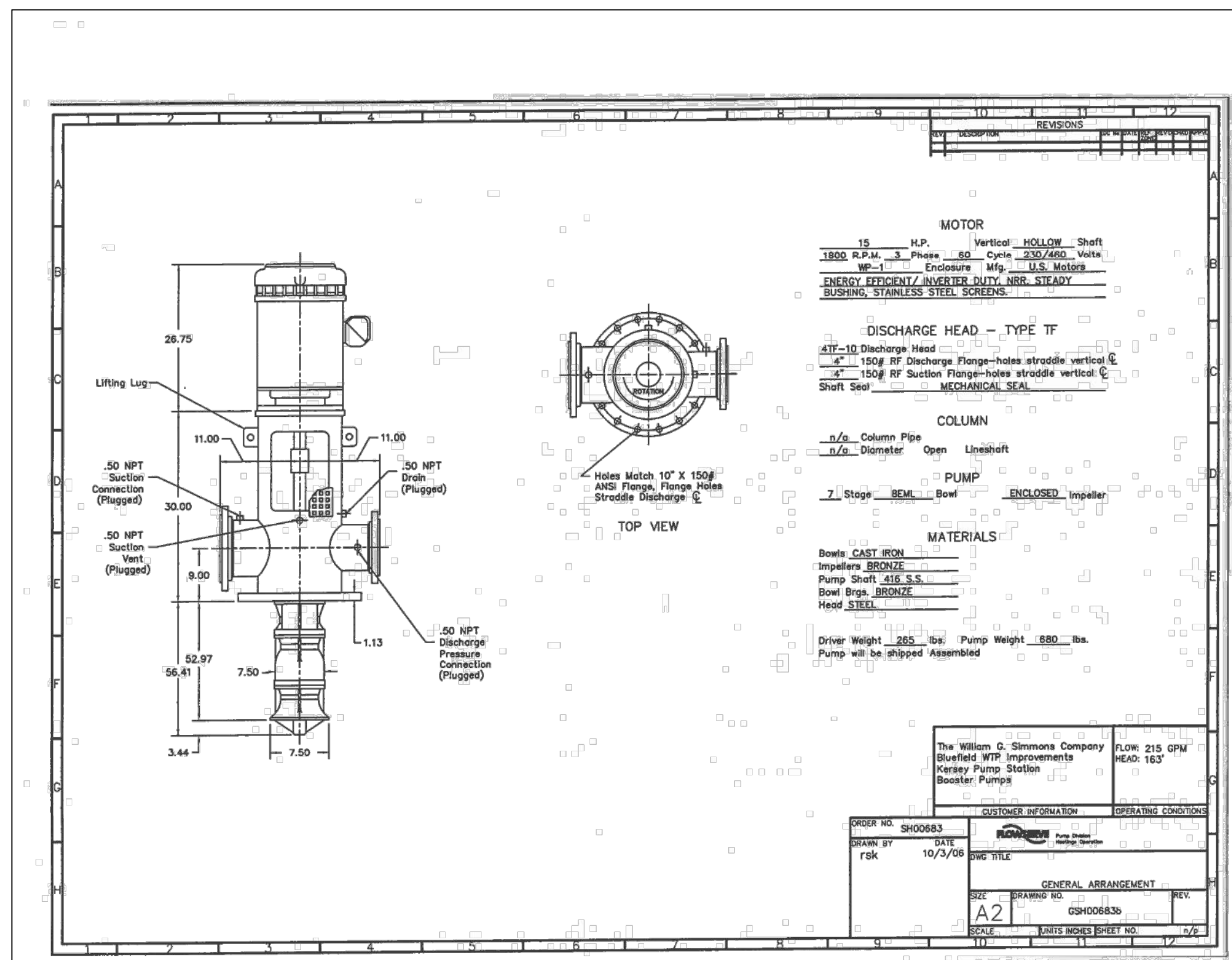
Features:

Horsepower 00060.00-00000.00 ~ KW: 44.76
Enclosure WPI
Poles 08-00 ~ RPM: 900-0
Frame Size 405-TP
Phase/Frequency/Voltage.. 3-Ø60-460
Winding Type Random Wound
Service Factor 1.15
Insulation Class Class "F" ~ Insulife 2000
Altitude In Feet (Max) .. 3300 Ft. (1000 M) ~ +40 C
Efficiency Class Premium Efficiency
Application Vertical Centrifugal Pump
Inverter Duty NEMA Part 31
Customer Part Number ... 8289201MTR
16.5" Base ~ Coupling Size: 1-1/4" Bore, 1/4" Key
Non-Reverse Ratchet ~ Steady Bushing
Pricebook Thrust Value (lbs) .. 8000
Customer Down Thrust (lbs) ... 1935
Customer Shutoff Thrust (lbs) . 3235
Up Thrust (lbs): -
Inverter Duty Rating Details:
Load Type (Base Hz & Below) .. Variable Torque
Speed Range (Base Hz & Below) . 611
VFD Service Factor 1.00
Temperature Rise (Sine Wave) "F" Rise 8 3F (Resist)
Starting Method Direct-On-Line Start
Duty Cycle Continuous Duty
Efficiency Value 93.0 % ~ Typical
Load Inertia: NEMA ~ Standard Inertia: 1473.00 LB-FT²
Number Of Starts Per Hour: NEMA
Motor Type Code RUI
Rotor Inertia (LB-FT²) 29.5 LB-FT²
Qty. of Bearings FE (Shaft) 1
Qty. of Bearings SE (OPP) 1
Bearing Number SE (Shaft) 6212-J
Bearing Number SE (OPP) 7222 BEM

Nidec trademarks followed by the ® symbol are registered with the U.S. Patent and Trademark Office.

NOTE:
ALL PUMPS AND MOTORS THIS SHEET SHALL BE MODEL INDICATED, NO EQUALS OR SUBSTITUTIONS ALLOWED.

KERSEY PUMP & MOTOR REPLACEMENT



EFFECTIVE: 02-MAR-11
SUPERSEDES: 31-JUL-03

VERTICAL MOTORS
WEATHER PROTECTED TYPE I
FRAME: 404, 405TP, TPA
TYPE: RU, RUE, RUI, RUS

PRINT: 09-2293
SHEET: 1 OF 1

PUMP SHAFT, ADJUSTING NUT, AND LOCKING SCREWS ARE NOT FURNISHED WITH MOTOR

AA SIZE CONDUIT

45°

4 HOLES

DIMENSIONS ARE IN INCHES AND MILLIMETERS

UNITS	P	A	G	AJ	AK	BB	BE	BF	BV	CD	EO	XO
IN	23.75	42.69	14.750	13.000	25	75	69	18.13	38.94	5.50	24.13	61.3
MM	603	1084	374.65	329.90	6	19	18	461	938	140	613	1558

FRAME	CONDUIT BOX MATERIAL	UNITS	AA	AB	AC	AF
400	STEEL	IN	3.00	16.97	12.69	3.38
	MM	MM	76.2	431	322	86
404, 405TPA	CAST IRON	IN	3 NPT	17.75	13.38	4.63
	MM	MM	457	340	118	

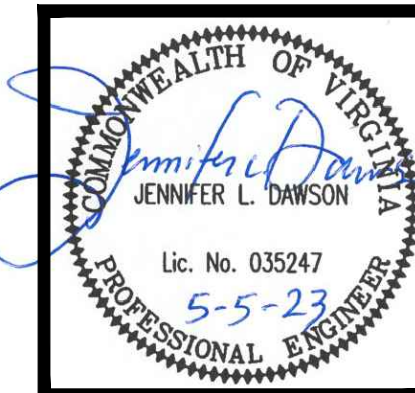
FRAME	UNITS	BD MAX
404, 405TP	IN	16.50
MM	MM	419
404, 405TPA	IN	20.50
MM	MM	508

TOLERANCES
FACE RUNOUT .007 T.I.R.
PERMISSIBLE ECCENTRICITY OF MOUNTING FLARE .007 T.I.R.

1. ALL DIMENSIONS MAY VARY BY .005" DUE TO CASTING AND/OR FABRICATION VARIATIONS.
2. LARGEST MOTOR WIDTH.
3. TOLERANCES SHOWN ARE IN INCHES ONLY.
4. CONDUIT BOX OPENING MAY BE LOCATED IN STEPS OF 87° REGARDLESS OF LOCATION, STANDARD AS SHOWN WITH CONDUIT OPENING DOWN.

ISSUED BY R. KING
APPROVED BY M. TREJO

PO P000281034 CO 8289201MTR



WATER SYSTEM CAPITAL IMPROVEMENTS - PHASE II
FOR THE
TOWN OF BLUEFIELD, VIRGINIA
RAW, FINISHED, AND KERSEY PUMPS
BACKWASH PUMP MOTOR

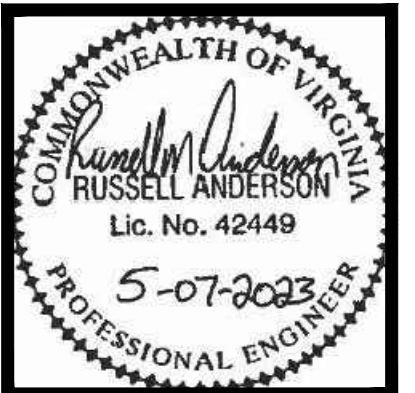
No.	Date	Issue
1	05-07-23	ISSUED FOR BID
2	06-08-23	ADDENDUM NO. 002

Designed: JLD
Drawn: ESB
Checked: DBM
Date: NOVEMBER 2021

Project No. 16176



Sheet No. C207

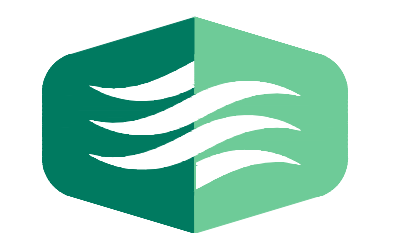


TOWN OF BLUEFIELD - AMERICAN RECOVERY ACT PLAN PROJECTS
ELECTRICAL PLANS - WATER TREATMENT PLANT

Purpose of Document Issue	
ISSUED FOR BIDS	
ADDENDUM NO. 002	
Date	05/07/2023
Date	06/08/2023
No.	1

Designed	JBC
Drawn	JBC
Checked	RMA
Date	05/07/2023

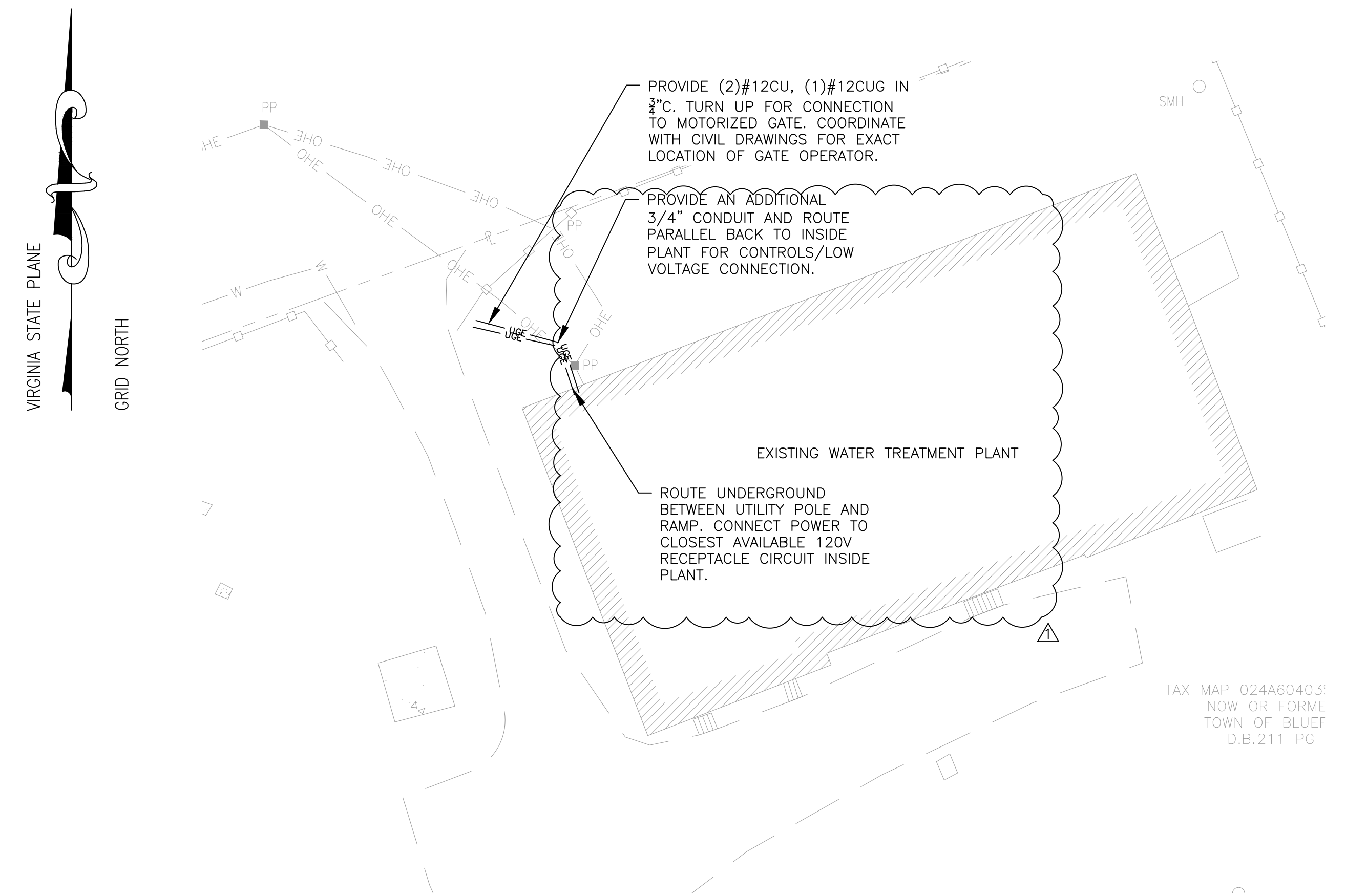
Project No. **16176**



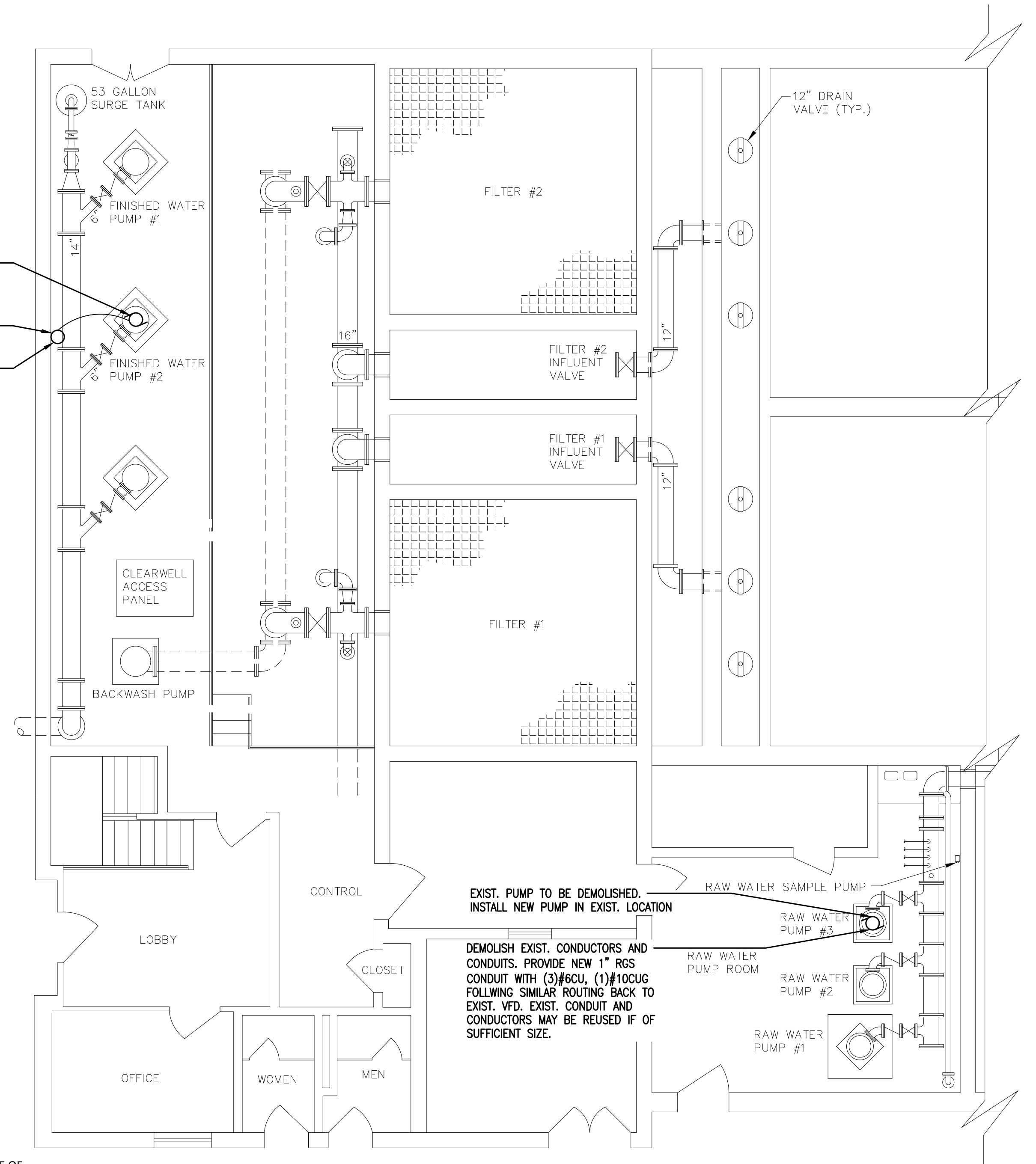
THOMPSON & LITTON

Sheet No.

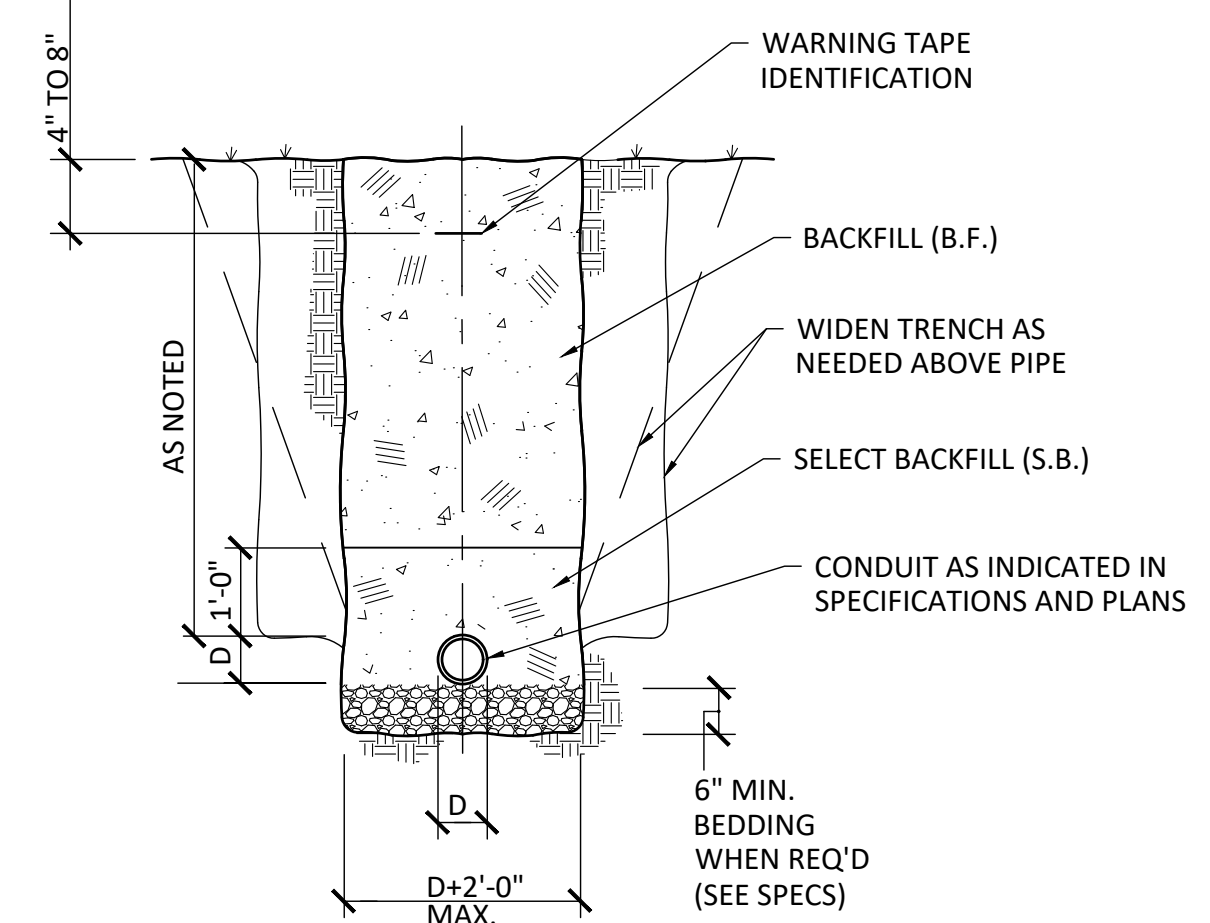
E101



ELEC. SITE PLAN - WATER TREATMENT PLANT
SCALE: 1"=20'

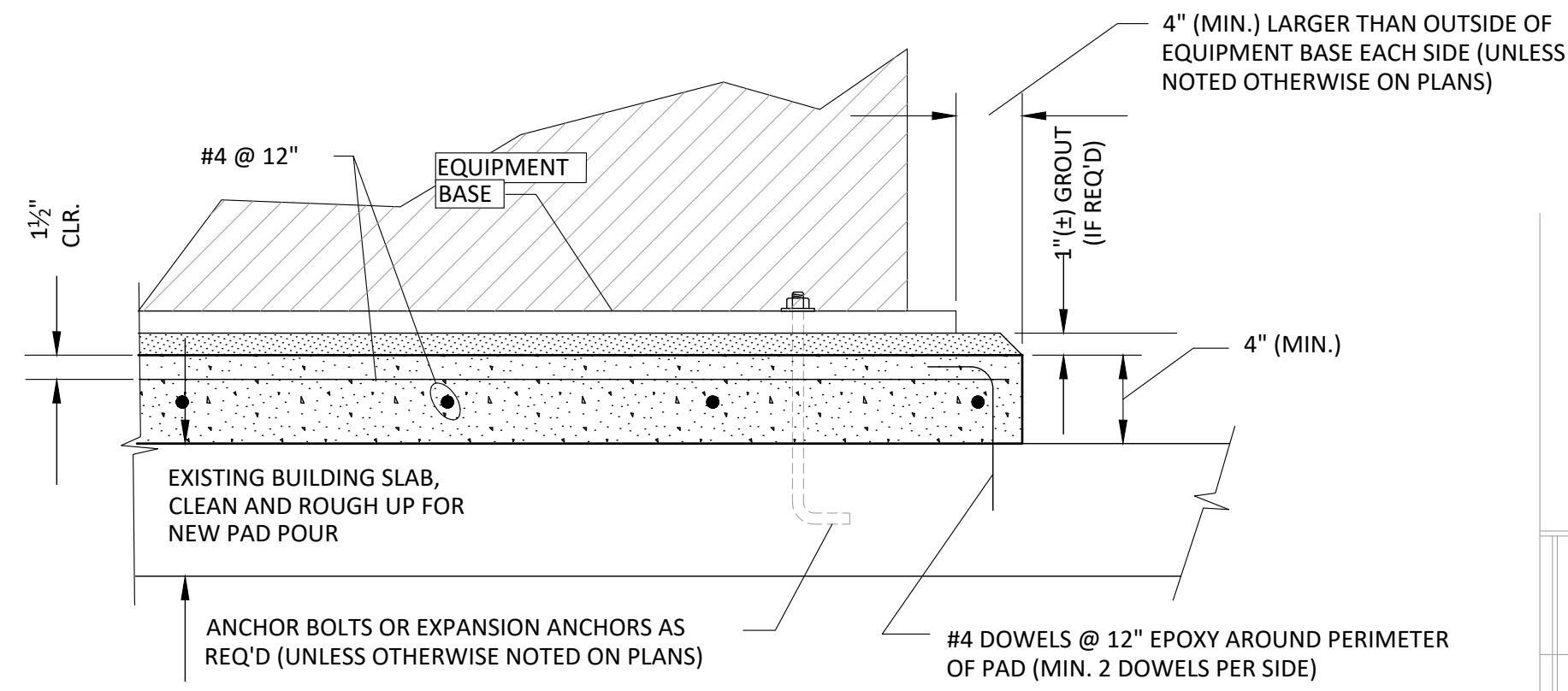


PARTIAL FIRST FLOOR POWER PLAN - WATER TREATMENT PLANT FIRST FLOOR
SCALE: 3/16"=1'-0"



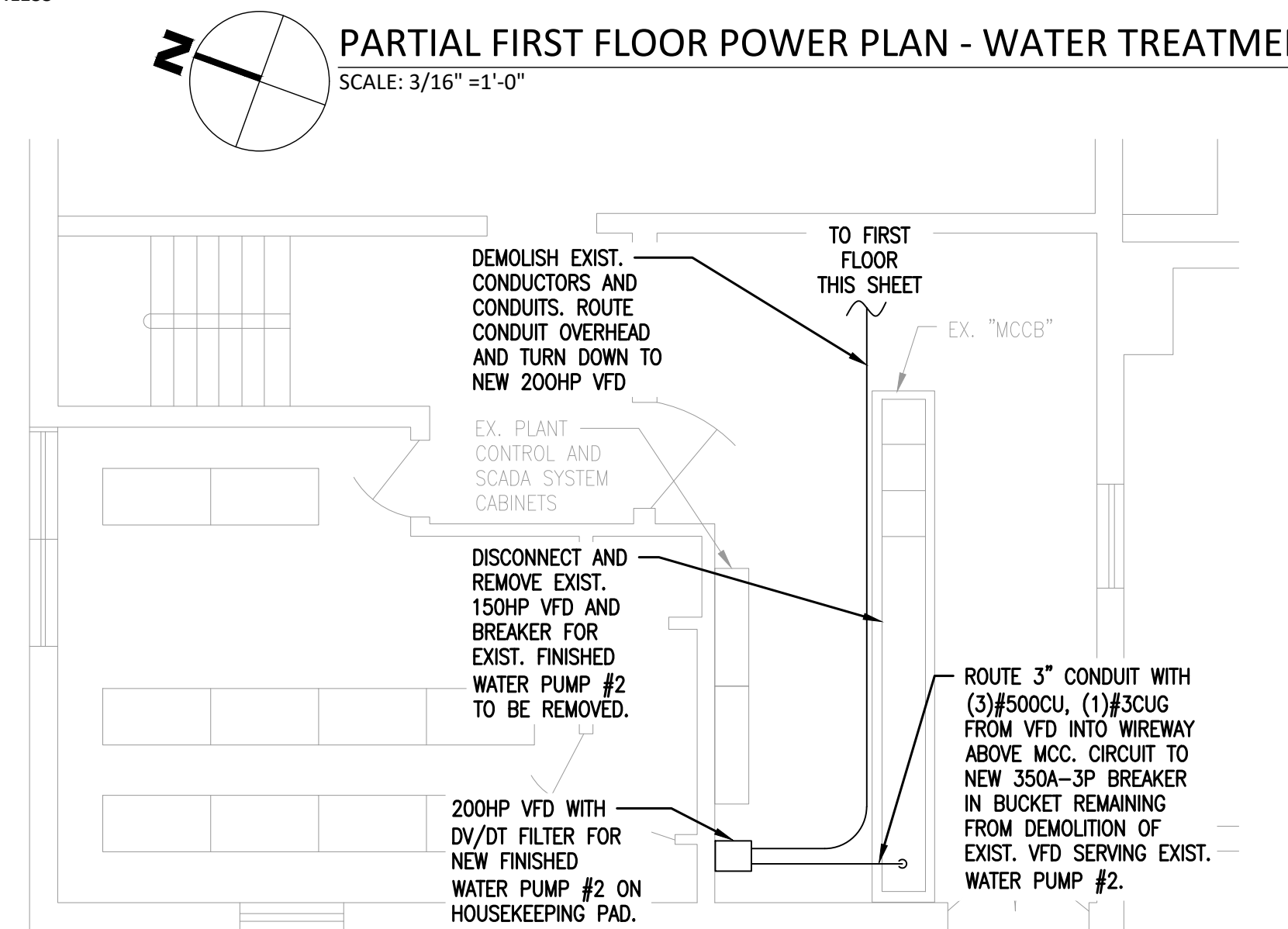
- NOTE:
- WHEN ADDITIONAL CONDUITS ARE ADDED, SPACE 3" BETWEEN CONDUITS
 - SUITABLE BACKFILL (B.F.) MATERIAL: BACKFILL MATERIAL SHALL BE CLEAN AND FREE FROM ALL ORGANIC MATERIAL, CLAY, MARL, OR UNSTABLE MATERIALS, DEBRIS, LUMPS, OR BROKEN PAVING. NO ROCKS OR STONES LARGER THAN 6 INCHES IN DIAMETER SHALL BE ALLOWED IN ANY BACKFILL. MATERIAL FOR BACKFILL MAY BE MATERIAL RESULTING FROM EXCAVATION, IF SUITABLE.
 - (S.B.) SELECT BACKFILL MATERIAL: SELECT BACKFILL MATERIAL SHALL MEET ALL THE GENERAL REQUIREMENTS FOR BACKFILL MATERIAL SET FORTH ABOVE, AND IN ADDITION, SHALL BE FREE OF ANY ROCKS OR STONES LARGER THAN 2 INCHES IN DIAMETER. SELECT BACKFILL MATERIAL MAY BE MATERIAL RESULTING FROM TRENCH EXCAVATION, IF SUITABLE, CAREFULLY SELECTED TO COMPLY WITH THESE REQUIREMENTS.
 - BEDDING SHALL BE #57 STONE.
 - 24" MINIMUM BURIAL DEPTH FOR 600VOLTS AND BELOW. 36" MINIMUM BURIAL DEPTH FOR OVER 600VOLTS.
 - FINISHED GRADE SHALL BE REPAIRED TO MATCH EXISTING.

TRENCH DETAIL SINGLE CELL
NTS

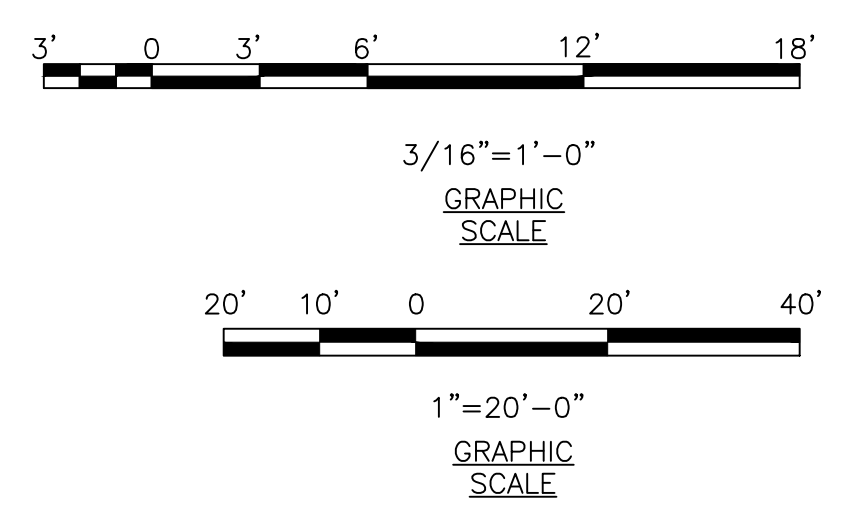


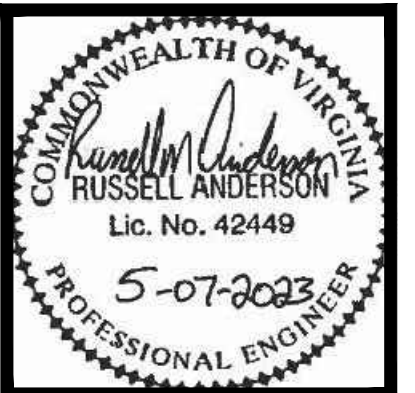
- NOTES:
- CONCRETE HOUSEKEEPING PAD SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.
 - ALL STEEL REINFORCING SHALL MEET ASTM A615 GRADE 60 KSI STEEL.

HOUSEKEEPING PAD DETAIL
NTS



PARTIAL FIRST FLOOR POWER PLAN - WATER TREATMENT PLANT SECOND FLOOR
SCALE: 3/16"=1'-0"



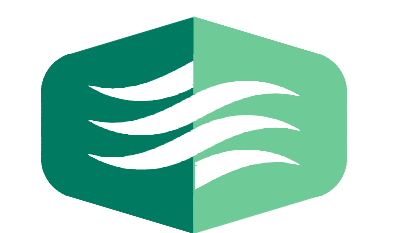


TOWN OF BLUEFIELD - AMERICAN RECOVERY ACT PLAN PROJECTS
ELECTRICAL SITE PLANS AND ONE-LINES - BRIERWOOD AND KERSEY PUMP STATIONS

Purpose of Document Issue	ISSUED FOR BIDS
ADDENDUM NO. 002	
Date	05/07/2023
ISSUED FOR BIDS	06/08/2023
No.	1

Designed	JBC
Drawn	JBC
Checked	RMA
Date	05/07/2023

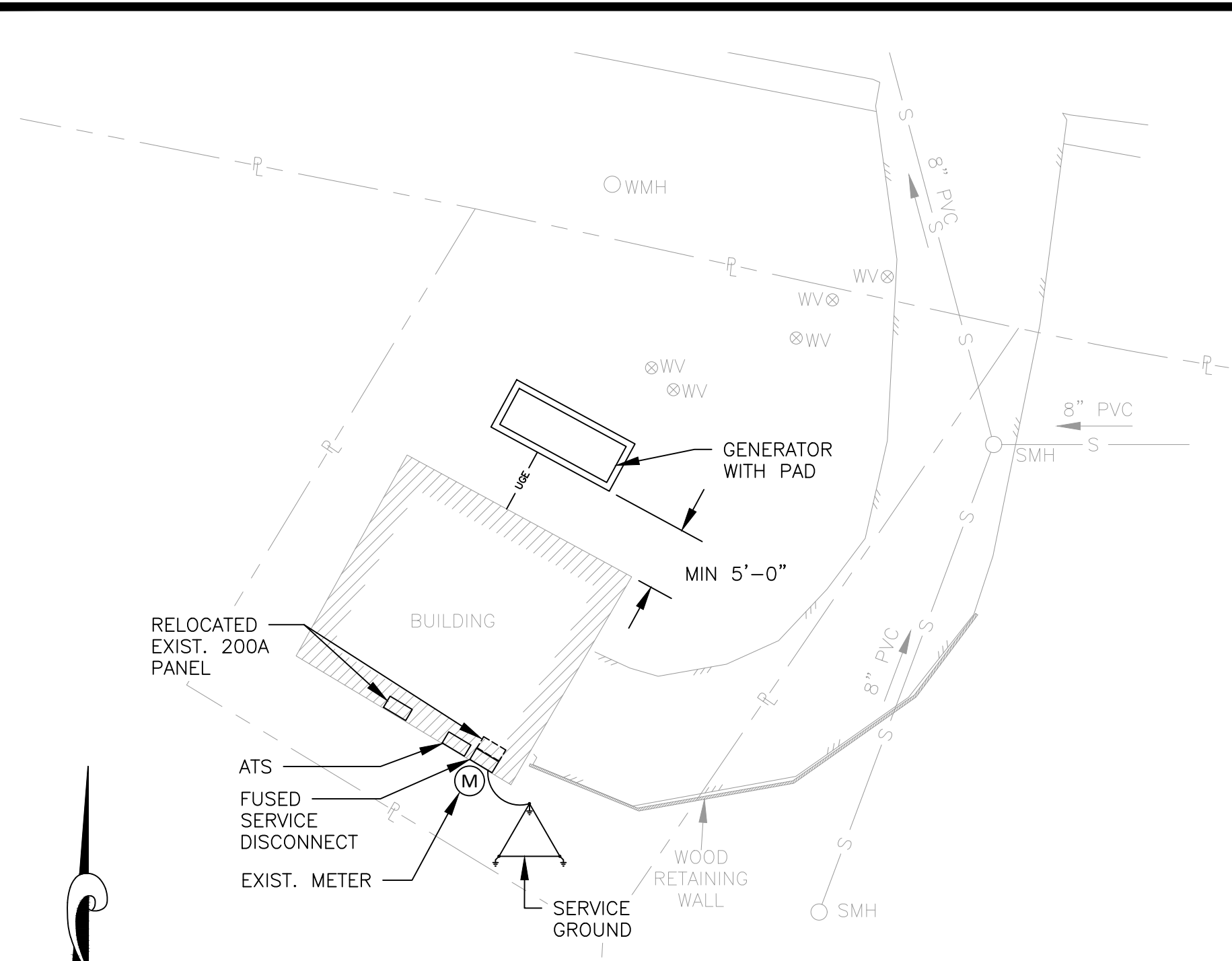
Project No. **16176**



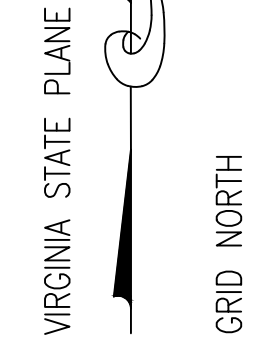
THOMPSON & LITTON

Sheet No.

E102



ELEC. SITE PLAN - BRIERWOOD PUMP STATION
SCALE: 1"=10'



- SHEET GENERAL NOTES:**
- REFER TO ONE-LINE DIAGRAMS FOR CIRCUITING INFORMATION FOR GENERATOR ACCESSORIES.
 - ISOLATE THE NEUTRAL FROM GROUND IN THE EXISTING SERVICE DISCONNECT OR PANEL WITH SERVICE DISCONNECT MAIN BREAKER. DISCONNECT THE GROUNDING ELECTRODE CONDUCTOR AND REMOVE IT.
 - MAKE SOLID NEUTRAL AND GROUND CONNECTION TO GROUND LUG IN THE NEW FUSED SERVICE DISCONNECT. INSTALL NEW GROUND ELECTRODE CONDUCTOR FROM THE GROUND LUG TO THE EXISTING GROUND RING. DO NOT SPLICE THE GROUNDING ELECTRODE CONDUCTOR. INSTALL THE ABOVE GROUND PORTION OF THE GROUND ELECTRODE CONDUCTOR IN AN RGS CONDUIT, BOND TO CONDUIT. IN ADDITION, CONNECT A GROUNDING ELECTRODE CONDUCTOR TO AN UNDERGROUND METAL WATER PIPE IF AVAILABLE. TEST GROUND RESISTANCE AND PROVIDE ADDITIONAL RODS AS REQUIRED TO PROVIDE LESS THAN 25-OHMS.
 - EXISTING GROUND ELECTRODE CONDUCTOR MAY BE REUSED IF CONDUCTOR CAN BE TRANSFERRED WITHOUT SPLICING AND IS SIZED AS INDICATED.
 - THE MAXIMUM AVAILABLE FAULT CURRENT FOR THE BRIERWOOD PUMP STATION IS 921A. ALL INSTALLED EQUIPMENT MUST MEET OR EXCEED THIS RATING. PROVIDE LABEL FOR NEW SERVICE DISCONNECT IN ACCORDANCE WITH THE NEC 110.24 'AVAILABLE FAULT CURRENT 921AMPS, 02/21/2023.'
 - THE MAXIMUM AVAILABLE FAULT CURRENT FOR KERSEY PUMP STATION IS 1766A. ALL INSTALLED EQUIPMENT MUST MEET OR EXCEED THIS RATING. PROVIDE LABEL FOR NEW SERVICE DISCONNECT IN ACCORDANCE WITH THE NEC 110.24 'AVAILABLE FAULT CURRENT 1766AMPS, 02/21/2023.'

DEVICE SCHEDULE - BRIERWOOD PUMP STATION:

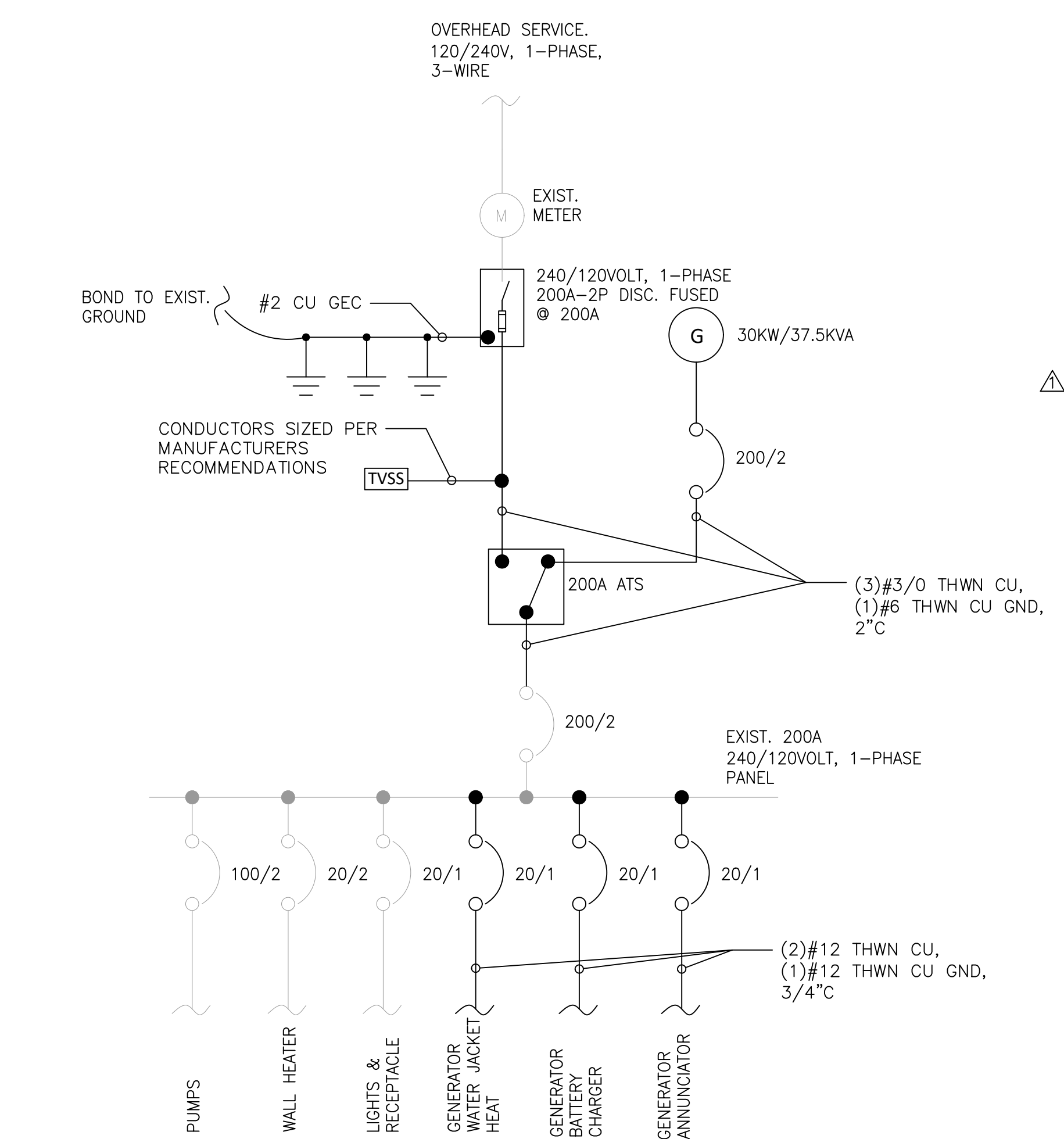
SERVICE DISCONNECT SWITCH - 2-POLE, SOLID NEUTRAL, 200A, 240/120V, FUSED AS INDICATED, 10KAIC, HEAVY DUTY, NEMA-1 ENCLOSURE, UL LISTED FOR SERVICE ENTRANCE, EQUAL TO SQUARE D 224. ENCLOSED BREAKER OF SAME RATINGS MAY ALSO BE USED.

DIESEL ENGINE GENERATOR - 120/240VOLT, 1-PHASE - 30KW @ 80% PF, 37.5KVA, DIESEL ENGINE DRIVEN ELECTRICAL GENERATOR, CRITICAL GRADE SILENCER, ISOCHRONOUS ELECTRONIC GOVERNOR AND VOLTAGE REGULATOR, WITH PHASE SENSING, LEVEL 1 SOUND ATTENUATED ENCLOSURE, LOCAL RADIATOR AT ENGINE, BATTERIES AND CHARGER ON BOARD, WATER JACKET HEATER, MAIN LINE CIRCUIT BREAKER SIZED AS INDICATED, CONTROL PANEL, U.L. LISTED DOUBLE WALL SUBBASE TANK SIZED FOR 24HR RUNTIME @ 100% LOAD WITH CONTAINMENT AND ALARM SYSTEM, REMOTE VENT AND FILL CONNECTIONS, VIBRATION ISOLATION MOUNTS. EQUAL TO KOHLER OR CATERPILLAR. PROVIDE STANDARD STARTUP PER MANUFACTURER'S STANDARD REQUIREMENTS. VERIFY COMPLIANCE WITH STARTING AND LOAD ACCEPTANCE REQUIREMENTS. VERIFY VOLTAGE AND FREQUENCY; MAKE REQUIRED ADJUSTMENTS AS NECESSARY. VERIFY PHASE SEQUENCE. VERIFY CONTROL SYSTEM OPERATION, INCLUDING SAFETY SHUTDOWNS. VERIFY OPERATION OF AUXILIARY EQUIPMENT AND ACCESSORIES (E.G. BATTERY CHARGER, HEATERS, ETC.). PERFORM LOAD TESTS: 1.5 HOUR BUILDING LOAD TEST FOLLOWED BY 2 HOUR FULL LOAD TEST.

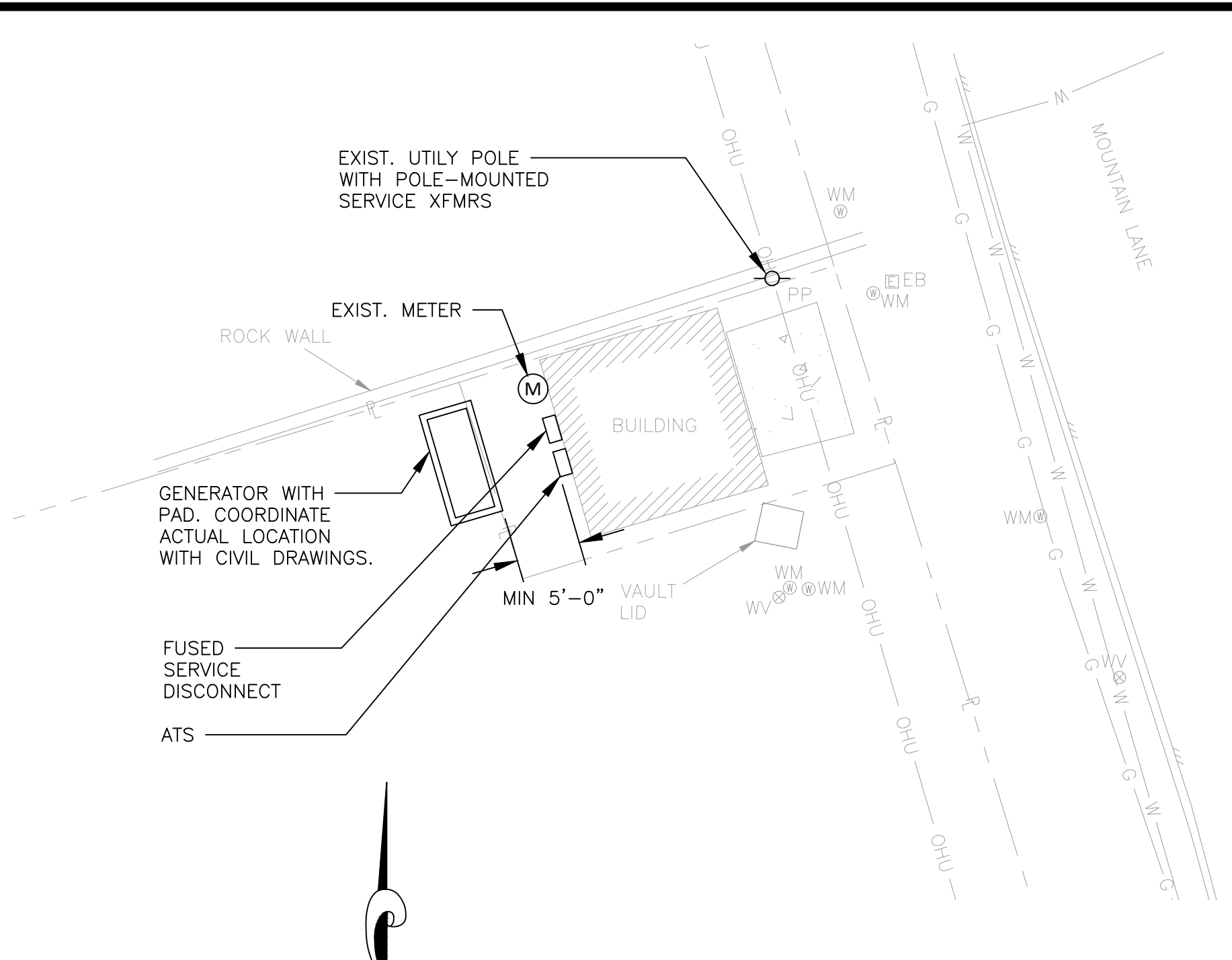
AUTOMATIC TRANSFER SWITCH - 200 AMP, 240V, 1-PHASE, 3 WIRE, SOLID NEUTRAL BLOCK, NEMA-3R ENCLOSURE, CONTACTOR TYPE, 10,000 AMP WITHSTAND RATING IN 3 CYCLES, OPEN TRANSITION, IN-PHASE MONITOR, DOUBLE THROW MECHANISM, EQUAL TO KOHLER, CATERPILLAR, ASCO, OR RUSSEL ELECTRIC

TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR, 600VAC PHASE TO GROUND MAXIMUM, WEATHERPROOF, NEMA-3R, BREAKER SIZED PER MANUFACTURERS REQUIREMENTS, EQUAL TO SQUARE D 2040.

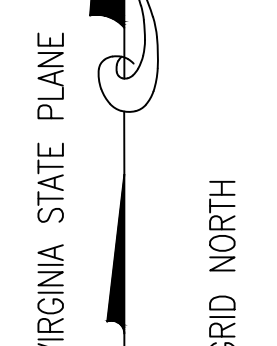
CAMERA SYSTEM - CONTRACTOR SHALL PROVIDE (2) HIGH DEFINITION, OUTDOOR RATED CAMERAS, MOUNTED PER OWNER'S DIRECTION. CONTRACTOR ALSO SHALL PROVIDE MEANS OF LOCAL VIDEO RECORDING AND CONTROL, AS WELL AS MEANS OF REMOTE ACCESS TO VIDEO FROM THE MAIN WATER TREATMENT PLANT CONTROL ROOM. ALL REQUIRED CONNECTIONS, CABLING, RACKS, AND ACCESSORIES REQUIRED FOR A FULLY OPERABLE SYSTEM SHALL BE INCLUDED.



ELEC. ONE-LINE DIAGRAM - BRIERWOOD PUMP STATION
N.T.S.



ELEC. SITE PLAN - KERSEY PUMP STATION
SCALE: 1"=10'



DEVICE SCHEDULE - KERSEY PUMP STATION:

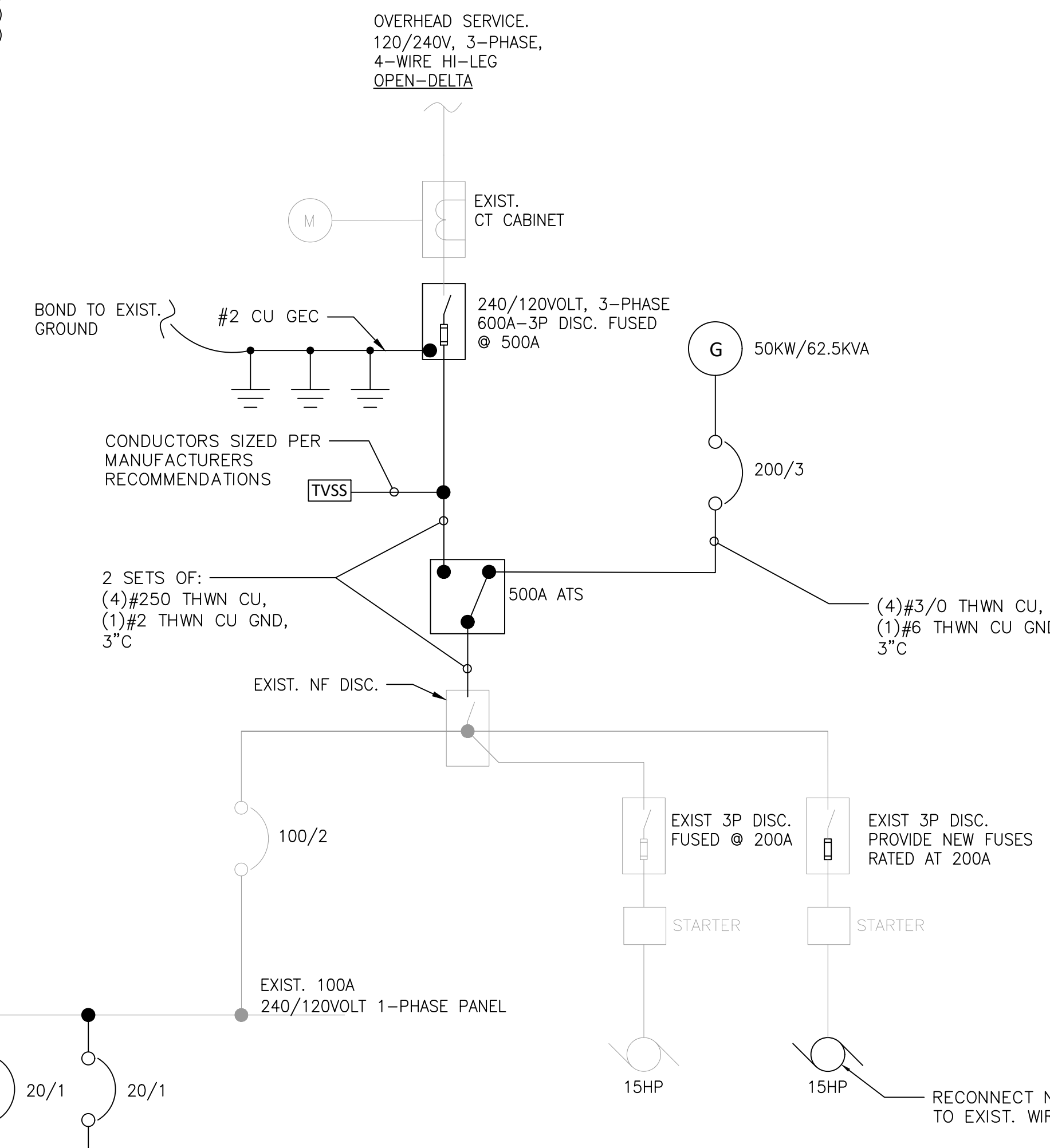
SERVICE DISCONNECT SWITCH - 3-POLE, SOLID NEUTRAL, 600A, 240/120V, FUSED AS INDICATED, HEAVY DUTY, NEMA-3R ENCLOSURE, UL LISTED FOR SERVICE ENTRANCE, EQUAL TO SQUARE D CLASS 366. ENCLOSED BREAKER OF SIMILAR RATINGS MAY ALSO BE USED.

DIESEL ENGINE GENERATOR - 120/240VOLT, THREE-PHASE - 50KW @ 80% PF, 62.5KVA, DIESEL ENGINE DRIVEN ELECTRICAL GENERATOR, CRITICAL GRADE SILENCER, ISOCHRONOUS ELECTRONIC GOVERNOR AND VOLTAGE REGULATOR, WITH PHASE SENSING, LEVEL 1 SOUND ATTENUATED ENCLOSURE, LOCAL RADIATOR AT ENGINE, BATTERIES AND CHARGER ON BOARD, WATER JACKET HEATER, MAIN LINE CIRCUIT BREAKER SIZED AS INDICATED, CONTROL PANEL, U.L. LISTED DOUBLE WALL SUBBASE TANK SIZED FOR 24HR RUNTIME @ 100% LOAD WITH CONTAINMENT AND ALARM SYSTEM, REMOTE VENT AND FILL CONNECTIONS, VIBRATION ISOLATION MOUNTS. EQUAL TO KOHLER OR CATERPILLAR. PLEASE NOTE THAT KERSEY PUMP STATION HAS AN OPEN DELTA SERVICE. COORDINATE WITH GENERATOR AND/OR ATS MANUFACTURER FOR ADDITIONAL MEASURES OR FEATURES THAT SHOULD BE INCLUDED TO OPERATE CORRECTLY ON THIS SERVICE TYPE. PROVIDE STANDARD STARTUP PER MANUFACTURER'S STANDARD REQUIREMENTS. VERIFY COMPLIANCE WITH STARTING AND LOAD ACCEPTANCE REQUIREMENTS. VERIFY VOLTAGE AND FREQUENCY; MAKE REQUIRED ADJUSTMENTS AS NECESSARY. VERIFY PHASE SEQUENCE. VERIFY CONTROL SYSTEM OPERATION, INCLUDING SAFETY SHUTDOWNS. VERIFY OPERATION OF AUXILIARY EQUIPMENT AND ACCESSORIES (E.G. BATTERY CHARGER, HEATERS, ETC.). PERFORM LOAD TESTS: 1.5 HOUR BUILDING LOAD TEST FOLLOWED BY 2 HOUR FULL LOAD TEST.

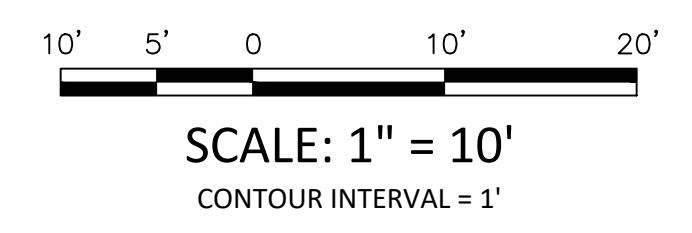
AUTOMATIC TRANSFER SWITCH - 500 AMP, 240/120V 3-PHASE, 4 WIRE, SOLID NEUTRAL BLOCK, NEMA-3R ENCLOSURE, CONTACTOR TYPE, 10,000 AMP WITHSTAND RATING IN 3 CYCLES, OPEN TRANSITION, IN-PHASE MONITOR, DOUBLE THROW MECHANISM, EQUAL TO KOHLER, CATERPILLAR, ASCO, OR RUSSEL ELECTRIC. PLEASE NOTE THAT KERSEY PUMP STATION HAS AN OPEN DELTA SERVICE. COORDINATE WITH GENERATOR AND/OR ATS MANUFACTURER FOR ADDITIONAL MEASURES OR FEATURES THAT SHOULD BE INCLUDED TO OPERATE CORRECTLY ON THIS SERVICE TYPE.

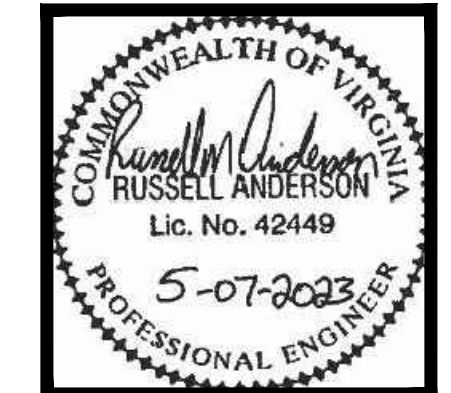
TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR, 600VAC PHASE TO GROUND MAXIMUM, WEATHERPROOF, NEMA-3R, BREAKER SIZED PER MANUFACTURERS REQUIREMENTS, EQUAL TO SQUARE D 2040.

CAMERA SYSTEM - CONTRACTOR SHALL PROVIDE (2) HIGH DEFINITION, OUTDOOR RATED CAMERAS, MOUNTED PER OWNER'S DIRECTION. CONTRACTOR ALSO SHALL PROVIDE MEANS OF LOCAL VIDEO RECORDING AND CONTROL, AS WELL AS MEANS OF REMOTE ACCESS TO VIDEO FROM THE MAIN WATER TREATMENT PLANT CONTROL ROOM. ALL REQUIRED CONNECTIONS, CABLING, RACKS, AND ACCESSORIES REQUIRED FOR A FULLY OPERABLE SYSTEM SHALL BE INCLUDED.



ELEC. ONE-LINE DIAGRAM - KERSEY PUMP STATION
N.T.S.



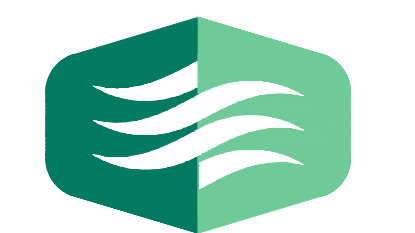


TOWN OF BLUEFIELD - AMERICAN RECOVERY ACT PLAN PROJECTS
ELECTRICAL SITE PLANS AND ONE-LINES - DOUBLE GATE TANK AND FALLS MILL PUMP STATION

Purpose of Document Issue	
ISSUED FOR BIDS	ADDENDUM NO. 002
Date	05/07/2023
Date	06/08/2023
No.	1

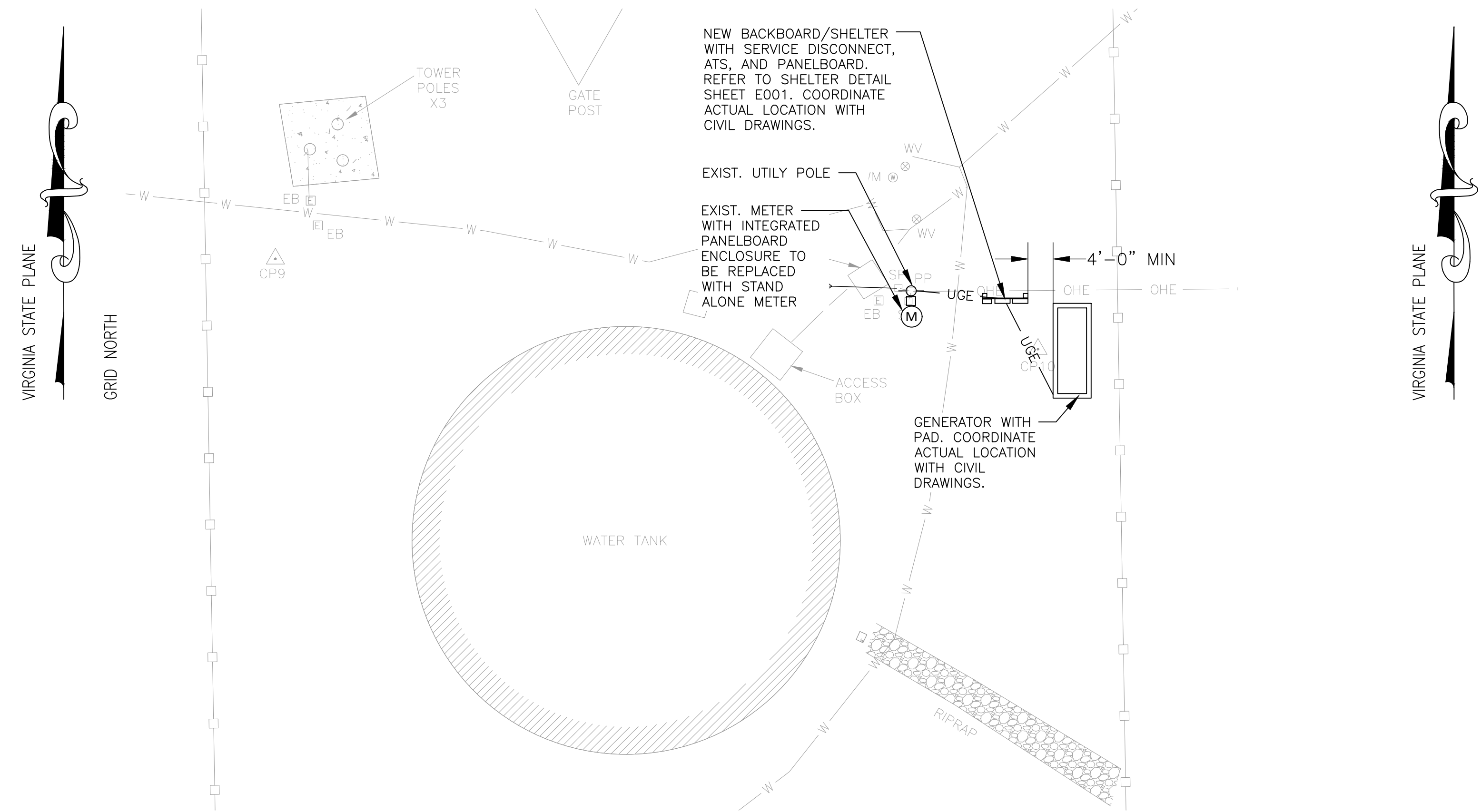
Designed	JBC
Drawn	JBC
Checked	RMA
Date	05/07/2023

Project No. 16176



Sheet No.

E103

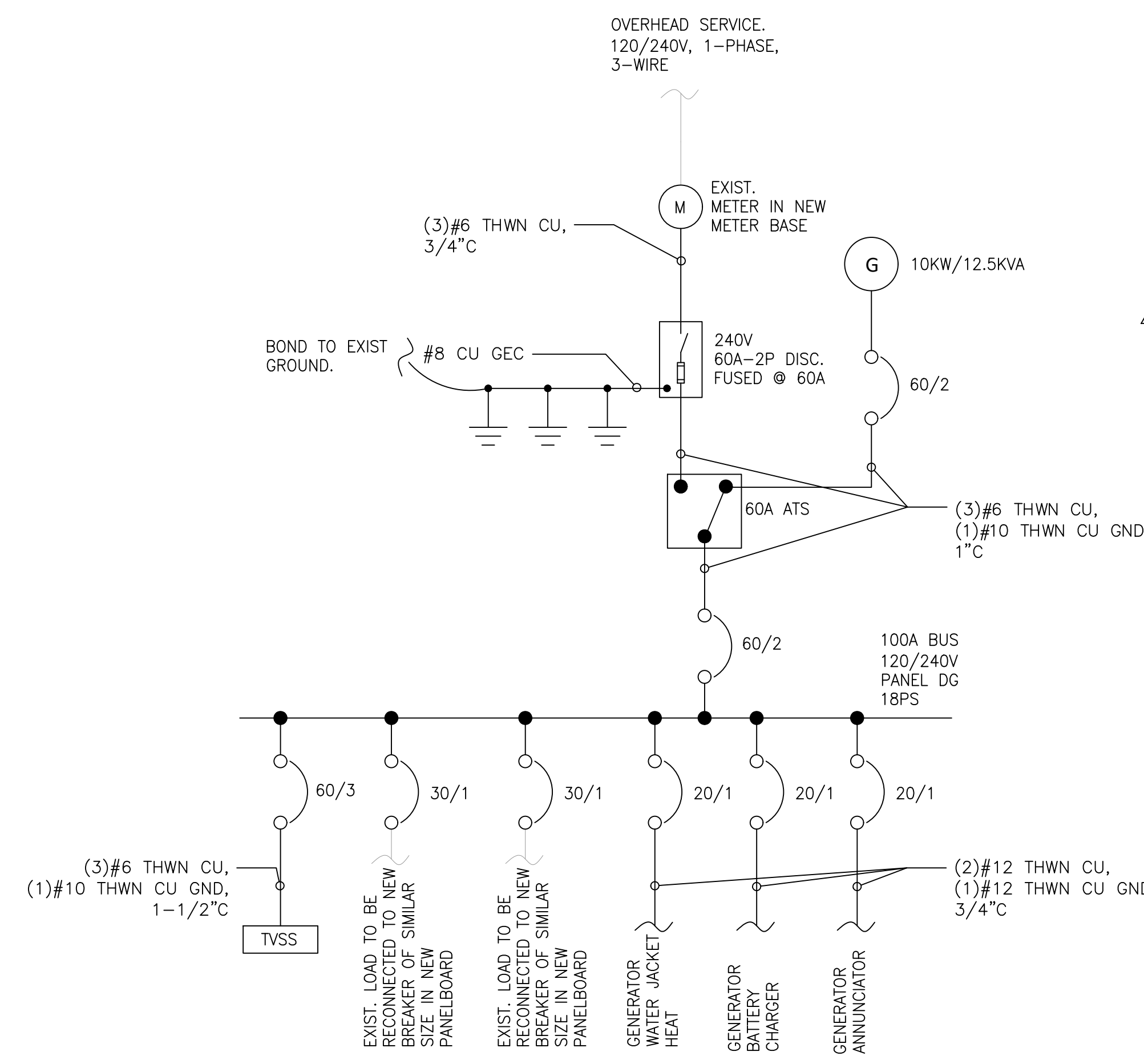


ELEC. SITE PLAN - DOUBLE GATES TANK
SCALE: 1"=10'



ELEC. SITE PLAN - FALLS MILL VAULT
SCALE: 1"=10'

- SHEET GENERAL NOTES:**
- REFER TO ONE-LINE DIAGRAMS FOR CIRCUITING INFORMATION ON GENERATOR ACCESSORIES WHERE APPLICABLE.
 - ISOLATE THE NEUTRAL FROM GROUND IN THE EXISTING SERVICE DISCONNECT OR PANEL WITH SERVICE DISCONNECT MAIN BREAKER. DISCONNECT THE GROUNDING ELECTRODE CONDUCTOR AND REMOVE IT.
 - MAKE SOLID NEUTRAL AND GROUND CONNECTION TO GROUND LUG IN THE NEW FUSED SERVICE DISCONNECT. INSTALL NEW GROUND ELECTRODE CONDUCTOR FROM THE GROUND LUG TO THE EXISTING GROUND RING. DO NOT SPLICE THE GROUNDING ELECTRODE CONDUCTOR. INSTALL THE ABOVE GROUND PORTION OF THE GROUND ELECTRODE CONDUCTOR IN AN RGS CONDUIT, BOND TO CONDUIT IN ADDITION, CONNECT A GROUNDING ELECTRODE CONDUCTOR TO AN UNDERGROUND METAL WATER PIPE IF AVAILABLE. TEST GROUND RESISTANCE AND PROVIDE ADDITIONAL RODS AS REQUIRED TO PROVIDE LESS THAN 25-OHMS.
 - EXISTING GROUND ELECTRODE CONDUCTOR MAY BE REUSED IF CONDUCTOR CAN BE TRANSFERRED WITHOUT SPLICING AND IS SIZED AS INDICATED.
 - THE MAXIMUM AVAILABLE FAULT CURRENT FOR DOUBLE GATES TANK IS 1088A. ALL INSTALLED EQUIPMENT MUST MEET OR EXCEED THIS RATING. PROVIDE LABEL FOR NEW SERVICE DISCONNECT IN ACCORDANCE WITH THE NEC 110.24 'AVAILABLE FAULT CURRENT 1088AMPS, 02/21/2023.'
 - THE MAXIMUM AVAILABLE FAULT CURRENT FOR FALLS MILL IS 1493A. ALL INSTALLED EQUIPMENT MUST MEET OR EXCEED THIS RATING. PROVIDE LABEL FOR NEW SERVICE DISCONNECT IN ACCORDANCE WITH THE NEC 110.24 'AVAILABLE FAULT CURRENT 1493AMPS, 02/21/2023.'
 - GENERATOR PAD SHALL BE CONSTRUCTED PER GENERATOR PAD DETAIL LOCATED ON CIVIL SHEETS.



ELEC. ONE-LINE DIAGRAM - DOUBLE GATES TANK
N.T.S.

DEVICE SCHEDULE - DOUBLE GATES TANK:

PANELBOARD DG - 120/240V 1-PHASE, 3-WIRE, 100A BUS, MAIN BREAKER SIZED AS INDICATED, 18 POLE SPACES, BOLT-ON CIRCUIT BREAKERS, 14,000 AMP SHORT CIRCUIT RATING, NEMA-3R SURFACE MOUNT ENCLOSURE, EQUAL TO SQUARE D NO.

SERVICE DISCONNECT SWITCH - 2-POLE, SOLID NEUTRAL, 60A 240V, FUSED AS INDICATED, HEAVY DUTY, NEMA-3R ENCLOSURE, UL LISTED FOR SERVICE ENTRANCE, EQUAL TO SQUARE D 222. ENCLOSED BREAKER OF SIMILAR RATINGS MAY ALSO BE USED.

DIESEL ENGINE GENERATOR - 10KW @ 80% PF, 12.5KVA, DIESEL ENGINE DRIVEN ELECTRICAL GENERATOR, CRITICAL GRADE SILENCER, ISOSYNCHRONOUS ELECTRONIC GOVERNOR AND VOLTAGE REGULATOR, WITH PHASE SENSING, WEATHERPROOF ENCLOSURE, LOCAL RADIATOR AT ENGINE, BATTERIES AND CHARGER ON BOARD, WATER JACKET HEATER, MAIN LINE CIRCUIT BREAKER SIZED AS INDICATED, CONTROL PANEL, U.L. LISTED DOUBLE WALL SUBBASE TANK SIZED FOR 24HR RUNTIME @ 100% LOAD WITH CONTAINMENT AND ALARM SYSTEM, REMOTE VENT AND FILL CONNECTIONS, VIBRATION ISOLATION MOUNTS. EQUAL TO KOHLER, ONAN, OR CATERPILLAR. PROVIDE STANDARD STARTUP PER MANUFACTURER'S STANDARD REQUIREMENTS. VERIFY COMPLIANCE WITH STARTING AND LOAD ACCEPTANCE REQUIREMENTS. VERIFY VOLTAGE AND FREQUENCY; MAKE REQUIRED ADJUSTMENTS AS NECESSARY. VERIFY PHASE SEQUENCE. VERIFY CONTROL SYSTEM OPERATION, INCLUDING SAFETY SHUTDOWNS. VERIFY OPERATION OF AUXILIARY EQUIPMENT AND ACCESSORIES (E.G. BATTERY CHARGER, HEATERS, ETC.). PERFORM LOAD TESTS: 1.5 HOUR BUILDING LOAD TEST FOLLOWED BY 2 HOUR FULL LOAD TEST.

AUTOMATIC TRANSFER SWITCH - 60 AMP, 240V, 1-PHASE, 3 WIRE, SOLID NEUTRAL BLOCK, NEMA-3R ENCLOSURE, CONTACTOR TYPE, 10,000 AMP WITHSTAND RATING IN 3 CYCLES, OPEN TRANSITION, IN-PHASE MONITOR, DOUBLE THROW MECHANISM. EQUAL TO KOHLER, ONAN, CATERPILLAR, ASCO, OR RUSSEL ELECTRIC.

TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR, 600VAC PHASE TO GROUND MAXIMUM, WEATHERPROOF, NEMA-3R, BREAKER SIZED PER MANUFACTURERS REQUIREMENTS, EQUAL TO SQUARE D 1175.

CAMERA SYSTEM - CONTRACTOR SHALL PROVIDE (2) HIGH DEFINITION, OUTDOOR RATED CAMERAS, MOUNTED PER OWNER'S DIRECTION. CONTRACTOR ALSO SHALL PROVIDE MEANS OF LOCAL VIDEO RECORDING AND CONTROL, AS WELL AS MEANS OF REMOTE ACCESS TO VIDEO FROM THE MAIN WATER TREATMENT PLANT CONTROL ROOM. ALL REQUIRED CONNECTIONS, CABLING, RACKS, AND ACCESSORIES REQUIRED FOR A FULLY OPERABLE SYSTEM SHALL BE INCLUDED.

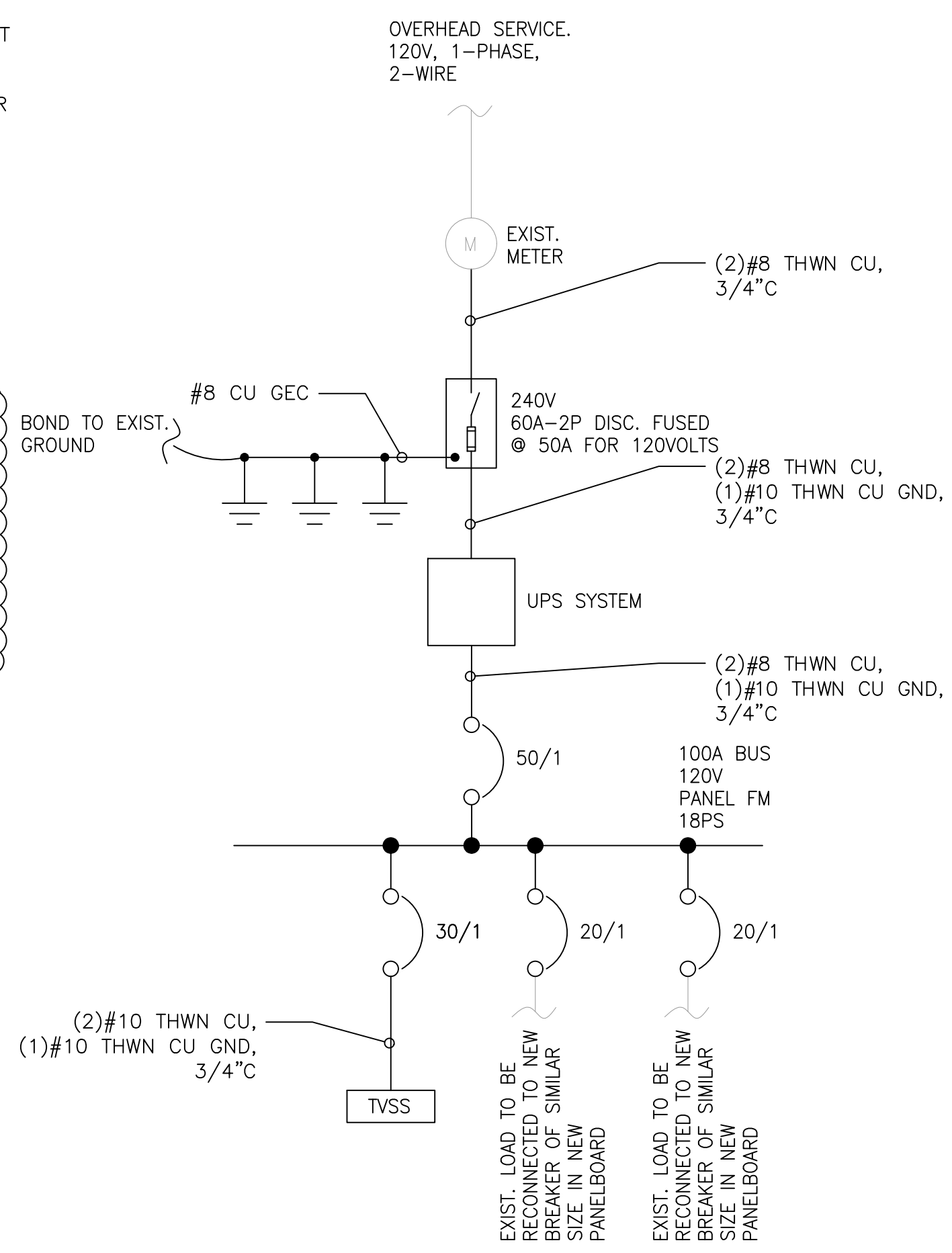
DEVICE SCHEDULE - FALLS MILL VAULT:

PANELBOARD FM - 120V 1-PHASE, 2-WIRE, 100A BUS, MAIN BREAKER SIZED AS INDICATED, 18 POLE SPACES, BOLT-ON CIRCUIT BREAKERS, 14,000 AMP SHORT CIRCUIT RATING, NEMA-3R SURFACE MOUNT ENCLOSURE, EQUAL TO SQUARE D NO.

SERVICE DISCONNECT SWITCH - 1-POLE, SOLID NEUTRAL, 60A 240V, CONNECTED WITH 120V AS INDICATED, FUSED AS INDICATED, HEAVY DUTY, NEMA-3R ENCLOSURE, UL LISTED FOR SERVICE ENTRANCE, EQUAL TO SQUARE D 222. ENCLOSED BREAKER OF SIMILAR RATINGS MAY ALSO BE USED.

UPS SYSTEM - "ALPHA MICRO 1000" UPS SYSTEM OR SIMILAR. PROVIDE ADDITIONAL BATTERIES FOR 24HR RUNTIME FOR 10A@120V. SYSTEM SHALL BE IN A WALL OR SHELTER MOUNTED NEMA-3R VERTICAL ENCLOSURE AND RATED TO OPERATE IN TEMPERATURE RANGE EXPECTED AT PROJECT SITE. SYSTEM SHALL HAVE AN INTEGRATED TRANSFER SWITCH TO ALLOW INSTANTANEOUS TRANSFER BETWEEN UTILITY AND BATTERY POWER. SYSTEM WILL INCLUDE ALL NECESSARY HEATING AND/OR COOLING TO MAINTAIN BATTERIES FOR THEIR RATED LIFE.

TVSS - TRANSIENT VOLTAGE SURGE SUPPRESSOR, 600VAC PHASE TO GROUND MAXIMUM, WEATHERPROOF, NEMA-4X, BREAKER SIZED PER MANUFACTURERS REQUIREMENTS, EQUAL TO SQUARE D SDSA1175T.



ELEC. ONE-LINE DIAGRAM - FALLS MILL VAULT
N.T.S.

